Motto:

“Education is the culture of character. Culture is the education of the mind.”

M. Eminescu

"ALEXANDRU IOAN CUZA" UNIVERSITY OF IAŞI
FACULTATY OF GEOGRAPHY AND GEOLOGY
20A Carol I Boulevard, Iaşi
R O M Â N I A
Phone: +40 (232) 201075; Fax: +40 (232) 201474
E-mail: geoiasi@uaic.ro
Website: www.geo.uaic.ro

STUDENT GUIDE

FACULTY OF GEOGRAPHY AND GEOLOGY

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Editor-in-chief:
Associate Prof. Adrian GROZAVU, PhD

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an. progr. Corneliu Agapi

Translation:
Anca Viusenco

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I.1. NAME, ADRESS

Faculty of Geography and Geology
20A Carol I Blvd, 700505 – Iaşi, Romania
Tel.: +40232.20.1075, +40232.20.1074
Fax: +40232.20.1474
E-mail: geoiasi@uaic.ro
Website: http://www.geo.uaic.ro

I.2. FACULTY MANAGEMENT

DEAN: ***Prof. Ovidiu Gabriel IANCU, PhD***
Phone: 0232 – 201075, E-mail: ogiancu@uaic.ro
DEPUTY DEAN: ***Associate Prof. Adrian GROZAVU, PhD***
Phone: 0232 – 201457, E-mail: adriangrozavu@yahoo.com
CHANCELLOR: ***Prof. Ionel MUNTELE, PhD***
Phone: 0232 – 201458, E-mail: imuntele@yahoo.fr

FACULTY COUNCIL

Prof. Ovidiu Gabriel IANCU, PhD – Dean
Associate Prof. Adrian GROZAVU, PhD – Deputy Dean
Prof. Ionel MUNTELE, PhD – Chancellor
Prof. Corneliu IAȚU, PhD – Head of the Department of Geography
Associate Prof. Nicolae BUZGAR, PhD – Head of the Department of Geology
Prof. Octavian GROZA, PhD – Head of the Doctoral School
Prof. Eng. Ion IONIȚĂ, PhD
Prof. Mihai BRÂNZILĂ, PhD
Associate Prof. Eng. Mihai ŞARAMET, PhD
Associate Prof. Dan STUMBEA, PhD
Associate Prof. Traian GAVRILOAIEI, PhD
Associate Prof. Doru-Toader JURAVLE, PhD
Associate Prof. Cristian-Vasilică SECU, PhD
Associate Prof. Paul ȚIBULEAC, PhD
Assistant Prof. George ȚURCĂNAŞU, PhD
Teaching Assistant Lucian SFÂCĂ, PhD
Teaching Assistant Adrian URSU, PhD
Representatives of the students – 6 persons
Ec. Cristian PRICOP - guest

ADMNISTRATION

- Ec. **Cristian PRICOP** Head Administrator
  Phone: 0232– 201499, E-mail:acpricop@uaic.ro
  (accomodation, scolarships, financial affairs)

SECRETARIAT

Work schedule*:* MONDAY – THURSDAY, **13.00 – 15.00**
FRIDAY – **no schedule**
Phone : 0232 – 201074; 201075
Fax: 0232-201474

- Eng. **Maria REBEGEA** Head Secretary
  rebegea@uaic.ro
  (doctoral studies, research, admission, Bachelor's Degree, scholarships)
- **Atena BULIGA** Secretary
  atenat@uaic.ro
- **Iulia Zenaida DĂNILĂ** Secretary
  zdanila@yahoo.com
- **Mihaela DĂNILĂ** Secretary
  enache_n_mihaela@yahoo.com
- **Ana Maria MIHĂIȚĂ** Secretary
  anamaria_08@yahoo.com
- **Corneliu AGAPI** Programming Analyst
  agcorneliu@yahoo.com

(student database, SIMS passwords, admission, scholarships, Bachelor's Degree, statistics, fees)

I.3. GENERAL PRESENTATION OF THE FACULTY

In the nearly 150 years of existence of the University of Iasi, the field of geosciences has been represented almost uninterruptedly, while the faculty bore various names, being more extended at times by including specialities from the fields of Biology and History.

From 1990, the faculty bears the name of Faculty of Geography and Geology. It is a higher education institution financed by the State, with a complex structure, well-adapted to the demands of the Romanian society, but also open towards Europe. Within the faculty there are both theoretical and technical specializations; as a result, the development strategy has particularities designed to suit each field.

The didactic activity within the Faculty of Geography and Geology is organized in *cycles of university studies* (according to Law 288/2004), divided into fields of study and specializations:

-Bachelor studies
-Master studies
-Doctoral studies

The Faculty of Geography and Geology is structured as follows:

1.The Department of Geography: it ensures specialized training in the following areas of Bachelor studies:

Geography (long duration full time learning – 3 years) for the following specialities:

-Geography
-Tourism Geography
-Land Planning
-Hydrology and Meteorology

Environmental Science (long duration full time learning – 3 years) in the speciality:

-Environmental Geography

2. The Department of Geology: it ensures specialized training in the following areas of Bachelor studies:

Geology (long duration full time learning – 3 years) in the speciality:

-Geochemistry

Geological Engineering ((long duration full time learning – 4 years) in the speciality:

-Geological Engineering

The postgraduate studies comprise the following Master's programmes:
Within the Department of Geography;

-Natural Hazards and Land Planning
-Tourism and Regional Development
-Present Environment and Sustainable Development

Within the Department of Geology:

-Environmental Geochemistry
-Welling and Environmental Geology

3. The Research Department of the Faculty of Geography and Geology: it has its own structure and budget, conducting scientific research in the following fields: Geography, Geology, Environmental Science and Geological Engineering. The activity of the Research Department is focused particularly on the reaching of the scientific and technological objectives established through various national and European Programs for scientific research and development. The Research Department is also in charge of reporting (annually or periodically) the results of the scientific activity conducted within the faculty, including through research grants or through conventions or contracts with other institutions.

Three research centres, recognized or approved by the competent authorities, are subordinated to The Research Department**:**

- The University Centre for Human Geography and Land Planning (CUGUAT-TIGRIS)

- The University Centre for Physico-Geographical and Pedological Research for a Sustainable Exploitation of Natural Resources (CUCFGPEDRN)

- The University Centre for Geochemistry and Determinative Geothermometry (CGGD)

The Doctoral School of the Faculty of Geography and Geology (SD-FGG) is included in the Department for Doctoral Studies (DSD) of the Institution Organizing University Doctoral Studies, "Alexandru Ioan Cuza" University of Iaşi (IOSUD-UAIC), which coordinates its activity.

The function of SD-FGG is to plan and organize the doctoral research activity in the fields of Geography, Geology and Environmental Science by coordinating the activity of PhD mentors, PhD candidates and of other categories of academic personnel included in its structure.

The aim of SD-FGG is to train specialists in the fields mentioned above so as to reach the standards set by the Bologna Process and those of the National Program for Development, also taking into consideration the criteria of the Operational Programme for the Development of Human Resources.

The Faculty of Geography and Geology has amiable relations with prestigious universities of the European Community, from francophone countries (France, Belgium), Anglo-Saxon countries (England, Germany, Switzerland) or countries where Romance languages are spoken (Italy, Spain) or from other regions (Japan, the United States of America etc). Students and teachers from our faculty have had the opportunity of conducting research, gathering information or training themselves abroad for certain periods of time or have benefited from cotutelle PhDs (France) or the possibility of doctoral studies abroad (Japan, the United States, Switzerland, Italy).

A great number of opportunities for student and teacher mobility within programmes such as Tempus, Erasmus-Socrates, Leonardo da Vinci or CEEPUS,

as well as numerous participations to international scientific manifestations and documentation stages in various regions of the Globe: Northern Africa (Tunisia, Morocco), South-Eastern Asia (Thailand, the Philippines), the Far East (China, Japan), South America (Brazil, Argentina), North America (Canada, the United States of America), Australia, the Iberian Peninsula (Spain), Western Europe (France, Italy, Germany), Central Europe (Austria, Hungary, Slovakia, Poland) and others, can also be added.

Our collaboration with foreign academic partners results in exchanges of **study stages** for students and **research stages** for the teaching staff, in **international practice programmes**, in **cycles of conferences** or in our being invited as partners in various research projects. We aim at collaborations with universities from our neighbouring countries (Hungary, the Republic of Moldova, Bulgaria, Ukraine) on various research projects focused on interregional development.

Special emphasis is placed on a policy of **rewarding** foreign specialists and collaborators **with high honorific titles** granted by the "Alexandru Ioan Cuza" University of Iaşi.

I.4. REGULATIONS

The Faculty of Geography and Geology is organised and functions according to the regulations of the "Alexandru Ioan Cuza" University, as well as its own regulations, devised according to legal provisions and to those of the University Charter:

-Regulations concerning the organisation and functioning of the Faculty of Geography and Geology

- Regulations concerning the organisation and functioning of the Department of Geography

- Regulations concerning the organisation and functioning of the Department of Geology

- Regulations concerning the organisation and functioning of the Research Department of the Faculty of Geography and Geology

- Regulations concerning the organisation and functioning of Doctoral School of the Faculty of Geography and Geology

- Regulations concerning the organisation and functioning of the Council of the Faculty of Geography and Geology

-Regulations concerning the didactic activity

These sets of regulations can be found at **www.uaic.ro** and **www.geo.uaic.ro**.

I.5. EDUCATIONAL OFFER

BACHELOR STUDIES

The field of **Geography**

Specialities: *Geography* (180 credit points, 3 years of study)
Tourism Geography (180 credit points, 3 years of study)
Land Planning (180 credit points, 3 years of study)
Hydrology and Meteorology (180 credit points, 3 years of study)

The field of **Environmental Science**

Speciality: *Environmental Geography* (180 credit points, 3 years of study)

The field of **Geology**

Speciality: *Geochemistry* (180 credit points, 3 years of study)

The field of **Geological Engineering**

Speciality: *Geological Engineering* (240 credit points, 3 years of study).

The regular duration for Bachelor studies is of 3 years (4 years in the case of Geological Engineering), corresponding to a number of 180 (or 240 in the case of Geological Engineering) transferable credit points (ECTS). The 60 extra credit points for Geological Engineering are granted either for general knowledge and competences or for specialized ones.

Students who seek to prepare themselves for a didactic career have to accumulate a number of 30 extra credit points through the *psycho-pedagogical module* whose classes they have to attend during the summer.

POSTGRADUATE STUDIES

a. MASTER STUDIES

- *Natural Hazards and Land Planning* (120 credit points, 2 years of study)
- *Tourism and Regional Development* (120 credit points, 2 years of study)
- *Present Environment and Sustainable Development* (120 credit points, 2 years of study)
- *Environmental Geochemistry* (120 credit points, 2 years of study)
- *Welling and Environmental Geology* (120 credit points, 2 years of study)

The number of transferable credit points that can be obtained during a Master's programme vary from 90 to 120. As an exception, depending on the duration of the Bachelor studies, the lowest number of transferable credit points can be 60. As far as full time learning is concerned, the regular duration of Master studies is of 1 or 2 years, corresponding to a number of 30 transferable credit points per semester.

The summed duration of the first cycle of studies (Bachelor studies) and the second cycle of studies (Master studies) has to correspond to the obtaining of at least 300 transferable credit points.

In order to obtain a Master's Degree, two programmes need to be completed:

1. The Master's academic training programme, consisting of the study and successful passing of certain advanced knowledge academic subjects

2. The scientific research programme, finalized with the public defence of a dissertation paper

b. DOCTORAL STUDIES

Within the Faculty of Geography and Geology, scientific PhDs in the **fundamental field of Natural Sciences** are organized, more precisely in two distinct doctoral areas:

-the field of **Geography**

-the field of **Geology**

The regular duration of the Doctoral cycle is of 3 years. Under special circumstances, this period can be extended with 1or 2 years, but only under the conditions stipulated by law.

In order to obtain the title of PhD, one must complete two programmes:

1. The advanced academic training programme, with a duration of 2 or 3 semesters, consisting of the studying and successful passing of a series of advanced knowledge academic subjects.

2. The scientific research programme, with a duration of 3 or 4 semesters, finalized with the public defence of a project of scientific research.

The Faculty of Geography and Geology grants its students **the right to choose** their specialities and academic subjects (according to the curricula) and to have the credit points obtained previously within the same university or as part of other Romanian universities or foreign universities with which "Alexandru Ioan Cuza" University has signed recognition agreements recognized.

I.6. ADMISSION / REGISTRATION

Candidates are **admitted** to the Faculty of Geography and Geology based on a selection contest, without exceeding the number of students proposed by the Senate of the University and approved through governmental decision or disobeying the conditions stipulated by law.

The number mentioned above is divided into:

- students whose studies are financed using funds from the State budget;

- students who pay taxes for their studies or whose education is financed from other extra-budgetary sources;

The admission is organized on fields of study or groups of fields of study.

The **registration** of the students whose admission has been confirmed after the selection contest is possible through a decision issued by the Rector of the University and through the signing of a study Contract between the parties.

A candidate that has been admitted can be registered in the second, third or fourth year if he or she has passed the previous years, a system of transferable credit points being applied.

Students have to sign up for courses before the beginning of each semester. The registration application, annexed to the study contract, has to contain the academic subjects that the student is going to study during the semester and the exams that he or she is going to sit in for.

Students that become part of our Faculty **through the Socrates program or through collaboration agreements** signed between "Alexandru Ioan Cuza" University and other Romanian or foreign universities register only temporarily, during the period in which they carry out their didactic activity, based on the signing of the study contract between the parties.

For registration to be possible, the file of each of these students must contain the following documents: Learning Agreement (signed by the ECTS coordinators), Student Application Form, the certificate issued by the university where the student comes from, testifying to his or her status as beneficiary of the Socrates mobility.

The faculty requires the following from the students who are temporarily registered:

a) photocopy of their passport;

b) two ID card-type photos;

c) a photocopy of the Learning Agreement (signed by the ECTS coordinators from both universities);

d) the updated content of the transcript of records;

The faculty offers the students who are temporarily registered student cards and CFR transportation passes, as stipulated by the law.

I.7. ECTS COORDINATOR FOR THE FACULTY

Prof. Ionel MUNTELE, PhD (Chancellor of the Faculty)

I.8. ACADEMIC CALENDAR

The structure of the academic year
2009 – 2010

Bachelor Studies and Master Studies, FULL TIME

1st Semester

September 28th – December 20th	12 weeks of teaching activities and evaluation
December 21st– January 10th	3 weeks of winter holiday
January 11st– February 7th	4 weeks of teaching activity and evaluation
February 8th– February 21st	2 weeks of holiday Between **February 15th and February 21st** a **re-sitting session** can be scheduled for **end of study exams**.

2nd Semester

February 22nd– June 10th	16 weeks of teaching activities and evaluation 1 week will be free for the celebration of Easter
June 21st – July 3rd	2 weeks of practice **The final study results for the 2010-2011 academic year will be finalized on July 3rd.**
July 3rd – October 1st	Summer holiday

2nd Semester (*for the final years*)

February 22nd – June 20th	16 weeks of teaching activities and evaluation 1 week will be free for the celebration of Easter
June 21st – July 4th	2 weeks for the finalisation of the diploma/dissertation paper Registration for the end of study exams will take place in the last week of this period
July 5th – July 11st	End of study exams

II. THE EDUCATIONAL OFFER OF THE FACULTY FOR EACH FIELD

II.1. EDUCATIONAL AND PROFESSIONAL OBJECTIVES

Through the academic programs it offers, the academic mission of the Faculty of Geography and Geology is outlined as having two major components: the didactic component and the scientific research component, differentiated according to field and speciality. On the whole, the Faculty aims at:

√ preparing specialists in the fields of **Geography**, **Environmental Science**, **Geology** and **Geological Engineering** (geological engineers), through high quality curricula, adapted to the necessities of the fields of national interest and in agreement with the regulations for European integration;

√ contributing to the development of personalities through continuing education;

√ improving the activity of the centres for excellence and promoting originality in scientific research, which can offer the basis for an integration of the activities within the demands for the protection of the environment and a sustainable development;

√ promoting high quality geographical, geochemical and geological learning;

II.2. QUALIFICATIONS GRANTED

Through the academic programmes it offers, the Faculty of Geography and Geology guarantees the obtaining of the following degrees, valid for the didactic, scientific or production activity:

- degree in Geography
- degree in Environmental Science
- degree in Geology
- Geological Engineer

Post-graduation employment opportunities:

The fields of Geography and Environmental Science: Undergraduate-level Teacher, Part of the Teaching Staff in Higher Education Institutions, Environmental Analyst, Tourism Analyst, Land Planner, Analyst in Demographic Issues, Specialist in Urbanization Issues, Specialist in Soils and Usage of Land, Specialist in Questions of Geopolitics and World Economy, Meteorologist, Hydrologist etc.

Employing institutions and companies: schools, high schools and national colleges, city halls, county councils, Prefect's offices, ministries, research institutions, travel

agencies and tour operators, environmental agencies, weather and hydrological stations, regional development agencies, NGOs, private consultancy firms etc.

The field of Geology (speciality: Geochemistry): main profession: geochemist; Positions occupied within the research and production activity: Geochemist, Environmental inspector, Geoservice Station Operator in Oil Geology, Environment Protection and Monitoring Specialist, Soil Quality Evaluation and Monitoring Specialist, Waste and Chemical Substance Management Specialist, Specialist in Hydro-geochemistry, Sources of Drinking Water, Mineral and Thermal Water, Mineral Resource Evaluation and Monitoring Specialist, Natural Hazard Management Specialist, Gemstone Evaluation Specialist, Curator, Researcher in Research Institutions and Universities, Part of the Teaching Staff in Higher Education Institutions, Analyst in Issues of Resources and World Economy.

Romanian or foreign employing institutions and companies: faculties from Romanian or foreign universities specialized in Geochemistry (particularly from Canada, the United States, Japan and Australia, National Research Institutions (the Romanian Geological Institute, the Research Institute for Pedology and Agro-chemistry, the Geodynamics Institute of the Romanian Academy, Geoecomar etc.), Refineries (Petrom, Rafo, Rompetrol etc.), Environmental Protection Agencies, County Departments of Agriculture, Romanian Waters National Administration (regional and county agencies), County and Local Councils, the Autonomous Salt Administration, Mines, Mineral Resource Import-Export Companies, *Geoservice International*, *Geolog International* (Italy, Canada), Ministries and National Agency for Mineral Resources etc.

The field of Geological Engineering (speciality: Geological Engineering): Profession: Geological Engineer; Positions occupied within the research and production activity: Geologist, Hydro-geologist, Geo-technician, Palaeontologist, Mud Logging Geologist, Data Geologist, Well Site Geologist, researcher in Oil Geology, researcher in Technical and Experimental Mineralogy (in Romania and abroad).

Romanian or foreign employing institutions and companies: the Geological Institute of Romania, Petrom SA, Dafora SA Mediaş, Daflog Mediaş, Geoservice International, Geolog International-Italy, SC Prospecțiuni SA Bucharest, Geoecomar Bucharest, Water Agencies; the National Institute of Meteorology and Water Management, Romanian or foreign faculties specialized in Geological Engineering, Drilling Companies; Daflog Mediaş offers annually scholarships to 3rd and 4th year Geological Engineering students, with the purpose of later recruiting them as specialists in the field of Exploration Geology.

II.3. CRITERIA FOR ADMITTANCE

For BACHELOR STUDIES, students are admitted based on a selection contest that takes into consideration their high school results:

- for the **fields of Geography** and **Environmental Science**: 20% the mean obtained at the Baccalaureate exam, 40% the mean of the high school years, 40% percent the mean obtained at Geography (or Biology or Chemistry or Physics, in the case of Environmental Science);
- for the **fields of Geology** and **Geological Engineering**: 25% the mean obtained at the Baccalaureate exam, 25% the mean of the high school years, 50% percent the mean obtained at Mathematics or Physics or Chemistry during high school;

Olympic students are declared **admitted without going through the selection process**, as follows:

- for the field of **Geography**: prizes and honourable mentions obtained at the international, national or county stage of the Geography Olympiad, at the national "Earth Sciences" Competition and at the "Geomundis" Competition;
- for the field of **Environnemental Science**: prizes and honourable mentions obtained at the national or county stage of the Geography, Biology, Chemistry or Physics Olympiad and at the national "Earth Sciences" Competition;
- for the fields of **Geology** and **Geological Engineering**: prizes and honourable mentions obtained at the international, national or county stage of the Mathematics, Chemistry or Physics Olympiad.

For MASTER STUDIES, students are admitted based on a selection contest that takes into consideration the results obtained throughout their Bachelor Studies:

- 50% the mean of the years of Bachelor Studies, 50% the mean obtained at the diploma/dissertation exam.

Graduates from both the public and the private educational systems can enter the selection contest with a Bachelor's Degree (or an equivalent) obtained for long duration academic studies**.**

Citizens of European Union countries or of states belonging to the European Economic Space and the Swiss Confederation can also enter the contest, under the same conditions stipulated by law valid for Romanian citizens, including that regarding tuition fees.

II.4. ACCES TO FURTHER STUDY

Bachelor Studies graduates can be enrolled in **Master's programmes** and, later, **Doctoral Studies**, according to the educational offer of the Faculty of Geography and Geology (**see page 8**).

II.5. CURRICULA

At the Faculty of Geography and Geology, the didactic activities (lectures, seminars, practical works, laboratories etc.) are structured into **academic subjects**, each being studied throughout a semester.

The repartition of academic subjects per semesters, the allotting of credit points per academic subject, the forms of assessment for each academic subject are specified in the **curricula** of each particular field or speciality of Bachelor Studies or Master Studies.

The curricula contain **compulsory subjects**, **elective subjects** and, if need be, **optional subjects:**

Field: **GEOGRAPHY**

Specialization: **Geography**

Table I: Compulsory and elective subjects

No.	Code	Title of subject	Number of hours/week				ECTS	Assessment			
			C	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	JG1101	general geography (physical and human)	**2**	**2**			**5**			**E**	
2	JG1102	Meteorology and climatology	**2**			**2**	**5**			**E**	
3	JG1103	Hydrology and Oceanography	**2**			**2**	**5**			**E**	
4	JG1104	Cartography with elements of topography	**2**			**2**	**5**			**E**	
5	L1105	foreign language	**2**	**2**			**5**		**C**		
6	JG1106	applied information technology	**2**			**2**	**5**		**C**		
2nd semester (1st year)											
7	JG1207	general Geology	**2**		**2**		**5**			**E**	
8	JG1208	Geography of europe	**2**		**2**		**5**			**E**	
9	JG1209	geography of natural resources and economic geography	**2**		**2**		**5**			**E**	
10	JG1210	remote sensing and image interpretation	**2**		**2**		**5**			**E**	
11	L1211	foreign language	**2**	**2**			**5**		**C**		
12	JG1212	field work					**5**		**C**		
3rd semester (2nd year)											
13	JG2301	geology of romania	**2**		**2**		**5**			**E**	
14	JG2302	Biogeography	**2**		**2**		**5**			**E**	
15	JG2303	geography of population	**2**		**2**		**5**			**E**	
16	JG2304	Geography of asia and australia	**2**		**2**		**5**		**C**		
17	JG2305	geography of tourism	**2**		**2**		**5**			**E**	
18	L2306	foreign language	**2**	**2**			**5**		**C**		
4th semester (2nd year)											
19	JG2407	soil geography with elements of pedology	**2**		**2**		**5**			**E**	
20	JG2408	REMOTE SENSING, AERIAL PHOTO-INTERPRETATION AND GIS	**2**		**2**		**5**		**C**		
21	JG2409	Geomorphology	**2**		**2**		**5**			**E**	
22	JG2410	elective subject	**2**		**2**		**5**		**C**		
23	L2411	foreign language	**2**	**2**			**5**		**C**		
24	JG2412	field work					**5**		**C**		
Elective subjects											
	JG2410	the Methodology of physico-geographical research	**2**		**2**		**5**		**C**		
	JG2410	research methodology in human geography	**2**		**2**		**5**		**C**		
5th semester (3rd year)											
25	JG3501	physical geography of romania	**2**		**2**		**5**			**E**	
26	JG3502	natural and anthropic risks and hazards	**2**		**2**		**5**			**E**	
27	JG3503	environmental geography	**2**		**2**		**5**			**E**	
28	JG3504	territorial organization and planning	**2**		**2**		**5**	**P**			
29	JG3505	Geography of America and africa	**2**		**2**		**5**			**E**	
30	JG3506	geography of the major world political and economic regions	**2**		**2**		**5**			**E**	
6th semester (3rd year)											
31	JG3607	physical geography of romania II	**2**		**2**		**5**			**E**	
32	JG3608	human geography of Romania	**2**		**2**		**5**			**E**	
33	JG3609	regional geography of romania	**2**		**2**		**5**			**E**	
34	JG3610	urban geography and rural geography	**2**		**2**		**5**			**E**	
35	JG3611	historical and political geography	**2**		**2**		**5**			**E**	
36	JG3612	elective subject	**2**		**2**		**5**		**C**		
37	JG3617	DIPLOMA PAPER					**5**			**E**	
Elective subjects											
	JG3612	quaternary Paleogeography	**2**	**2**			**5**		**C**		
	JG3612	geographical toponomastics	**2**	**2**			**5**		**C**		

Tabele II: Optional subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	R 1113	PSYCHOLOGY OF EDUCATION	**2**	**2**			**5**		C		
2	S1115	PHYSICAL EDUCATION			**2**				C		
2nd semester (1st year)											
3	R1214	fundamentals of pedagogy and curricular theory and methodology	**2**	**2**			**5**			E	
4	S1215	physical education			**2**				C		
3 rd semester (2nd year)											
5	JG2313	geography of planetary ocean resources	**2**	**1**					**C**		
6	JG2314	Geography of transportation	**2**	**1**					**C**		
7	R2314	theory and methodology of teaching and evaluation	**2**	**2**			**5**			**E**	
8	S2317	physical education			**2**				**C**		
4th semester (2nd year)											
9	JG2416	Didactics	**2**	**2**			**5**			**E**	
10	S2417	physical education			**2**				**C**		
5th semester (3rd year)											
11	JG3513	earth volcanism and seismicity	**2**	**1**					**C**		
12	R3514	Psychosociology of student groups	**1**	**2**			**4**		**C**		
13	JG3515	pedagogical traineeship		**3**			**5**		**C**		
6th semester (3rd year)											
14	JG3615	Pedagogical traineeship		**3**			**5**		**C**		
15	R3616	final evaluation. didactic portfolio		**1**			**1**			**E**	

Field: **GEOGRAPHY**

Specialization: **Tourism Geography**

Table I: Compulsory and elective subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	JT1101	General geography (physical and human)	**2**	**2**			**5**			**E**	
2	JT1102	Meteorology and climatology	**2**			**2**	**5**			**E**	
3	JT1103	Hydrology and oceanography	**2**			**2**	**5**			**E**	
4	JT1104	Introduction in the geography of tourism and services	**2**			**2**	**5**			**E**	
5	L1105	foreign language	**2**	**2**			**5**		**C**		
6	JT1106	Information technology applied to tourism	**2**			**2**	**5**		**C**		
2nd semester (1st year)											
7	JT1207	General geology	**2**		**2**		**5**			**E**	
8	JT1208	Cartography and geomatics in tourism	**2**		**2**		**5**			**E**	
9	JT1209	Geography of natural resources and economic geography	**2**		**2**		**5**			**E**	
10	JT1210	Geography of international tourism	**2**	**2**			**5**			**E**	
11	L1211	foreign language	**2**	**2**			**5**		**C**		
12	JT1212	field work					**5**		**C**		
3rd semester (2nd year)											
13	JT2301	Geography of population	**2**		**2**		**5**			**E**	
14	JT2302	Geomorphology	**2**		**2**		**5**			**E**	
15	JT2303	Biogeography and ecotourism	**2**		**2**		**5**			**E**	
16	JT2304	soil geography with elements of ecological agriculture	**2**		**2**		**5**			**E**	
17	JT2305	accountancy in tourism	**2**	**2**			**5**		**C**		
18	L2306	foreign language	**2**	**2**			**5**		**C**		
4th semester (2nd year)											
19	JT2407	Geography of the natural environments of the world	**2**		**2**		**5**			**E**	
20	JT2408	rural geography and the touristic potential of rural areas	**2**		**2**		**5**		**C**		
21	JT2409	management of touristic activities	**2**		**2**		**5**			**E**	
22	JT2410	elective subject	**2**	**2**			**5**			**E**	
23	L2411	foreign language	**2**	**2**			**5**		**C**		
24	JT2412	field work					**5**		**C**		
Elective subjects											
	JT2410	REMOTE SENSING, AERIAL PHOTO-INTERPRETATION AND GIS	**2**	**2**			**5**		**C**		
	JT2410	karstology	**2**	**2**			**5**		**C**		
5th semester (3rd year)											
25	JT3501	evaluation and prospection of touristic potential	**2**		**2**		**5**			**E**	
26	JT3502	urban geography and urban potential for tourism	**2**		**2**		**5**			**E**	
27	JT3503	cultural geography, ethnography and toponomastics	**2**		**2**		**5**			**E**	
28	JT3504	touristic marketing	**2**	**2**			**5**			**E**	
29	JT3505	touristic regions and centres	**2**		**2**		**5**		**C**		
30	JT3506	elective subject	**2**		**2**		**5**		**C**		
Elective subjects											
	JT3506	communication methods and techniques	**2**	**2**			**5**		**C**		
	JT3506	Parks and national reserves	**2**	**2**			**5**		**C**		
6th semester (3rd year)											
31	JT3607	touristic organization and planning	**2**		**2**		**5**	**P**			
32	JT3608	touristic potential of romania	**2**		**2**		**5**			**E**	
33	JT3609	anthropic touristic potential of romania	**2**		**2**		**5**			**E**	
34	JT3610	environmental geography	**2**		**2**		**5**			**E**	
35	JT3611	management of touristic centres (elective subject)	**2**	**2**			**5**		**C**		
36	JT3612	elective subject	**2**	**2**			**5**		**C**		
37	JT3618	diploma paper					**5**			**E**	
Elective subjects											
	JT3612	Balneoclimatology and balneary tourism	**2**	**2**			**5**		**C**		
	JT3612	tourism policies and sustainable development	**2**	**2**			**5**		**C**		

Table II: Optional subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	JT1113	CULTURE AND CIVILISATION	**2**	**2**					**C**		
2	RT1115	PSYCHOLOGY OF EDUCATION	**2**	**2**			**5**			**E**	
3	S1117	PHYSICAL EDUCATION			**2**				**C**		
2nd semester (2nd year)											
4	JT1214	art history	**2**	**2**					**C**		
5	R1216	fundamentals of pedagogy and curricular theory and methodology	**2**	**2**			**5**			**E**	
6	S1217	physical education			**2**				**C**		
3rd semester (2nd year)											
7	JT2313	Statistics in tourism	**2**	**2**					**C**		
8	R2315	theory and methodology of teaching and evaluation	**2**	**2**			**5**			**E**	
9	S2317	physical education			**2**				**C**		
4th											
10	JT2414	political geography	**2**	**2**					**C**		
11	JT2416	Didactics	**2**	**2**			**5**			**E**	
12	S2417	physical education			**2**				**C**		
5th											
13	JT3513	Geography of mineral and thermal waters	**2**	**2**					**C**		
14	JT3515	Psychosociology of student groups	**1**	**2**			**4**		**C**		
15	JT3516	Pedagogical traineeship			**3**		**5**		**C**		
6th semester (3rd year)											
16	JT3614	management of natural and anthropic risks generated by tourism	**2**	**2**					**C**		
17	JT3616	Pedagogical traineeship			**3**		**5**		**C**		
18	R3617	final evaluation. didactic portfolio		**1**			**1**			**E**	

Field: **GEOGRAPHY**
Specialization: **Land Planning**

Table I: Compulsory and elective subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	JPT1101	General geography (physical and human)	**2**	**2**			**5**			**E**	
2	JPT1102	Meteorology and Climatology	**2**		**2**		**5**			**E**	
3	JPT1103	Hydrology and Oceanography	**2**		**2**		**5**			**E**	
4	JPT1104	Topography with elements of geodesy	**2**		**2**		**5**			**E**	
5	L1105	foreign language	**2**	**2**			**5**		**C**		
6	JPT1106	applied information technology	**2**		**2**		**5**		**C**		
2nd semester (1st year)											
7	JPT1207	General geology	**2**		**2**		**5**			**E**	
8	JPT1208	Cartography with elements of geomatics	**2**		**2**		**5**			**E**	
9	JPT1209	theory of land planning	**2**	**2**			**5**			**E**	
10	JPT1210	Geography of resources and economic geography	**2**		**2**		**5**			**E**	
11	L1211	foreign language	**2**	**2**			**5**		**C**		
12	JPT1212	field work					**5**		**C**		
3rd semester (2nd year)											
13	JPT2301	Statistics applied to land planning	**2**		**2**		**5**			**E**	
14	JPT2302	Geomorphology	**2**		**2**		**5**			**E**	
15	JPT2303	Geography of population	**2**		**2**		**5**			**E**	
16	JPT2304	geographical information systems (g.i.s.)	**2**		**2**		**5**			**E**	
17	JT2305	elective subject	**2**	**2**			**5**		**C**		
18	L2306	foreign language	**2**	**2**			**5**		**C**		
Elective subjects											
	JPT2305	digital cartography	**2**	**2**			**5**		**C**		
	JPT2305	Geography of natural areas of the earth	**2**	**2**			**5**		**C**		
4th											
19	JPT2407	Biogeography	**2**		**2**		**5**			**E**	
20	JPT2408	soil geography with elements of pedology	**2**		**2**		**5**			**E**	
21	JPT2409	urban geography and rural geography	**2**		**2**		**5**			**E**	
22	JPT2410	remote sensing and image interpretation	**2**		**2**		**5**		**C**		
23	L2411	foreign language	**2**	**2**			**5**		**C**		
24	JPT2412	field work (3 weeks)					**5**		**C**		
5th semester (3rd year)											
25	JPT3501	physical geography of romania	**2**		**2**		**5**			**E**	
26	JPT3502	elective subject	**2**	**2**			**5**		**C**		
27	JPT3503	environmental geography	**2**		**2**		**5**			**E**	
28	JPT3504	Management of land planning	**2**		**2**		**5**			**E**	
29	JPT3505	Cadastre and cadastral legislation	**2**		**2**		**5**			**E**	
30	JPT3506	organisation of human settlements with elements of urbanism	**2**		**2**		**5**			**E**	
Elective subjects											
	JPT3502	social geography	**2**	**2**			**5**		**C**		
	JPT3502	natural and anthropic hazards and risk	**2**	**2**			**5**		**C**		
6th semester (3rd year)											
31	JPT3607	Location of industrial activities	**2**		**2**		**5**			**E**	
32	JPT3608	human geography of romania	**2**		**2**		**5**			**E**	
33	JPT3609	planning and improvement of agricultural land	**2**		**2**		**5**			**E**	
34	JPT3610	planning of transportation and commercial infrastructure	**2**		**2**		**5**			**E**	
35	JPT3611	territorial systems and regional development	**2**		**2**		**5**			**E**	
36	JPT3612	Elaboration of land planning plans	**2**		**2**		**5**			**E**	
37	JPT3619	diploma paper					**5**			**E**	

Tabele II: Elective subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	R1113	psychology of education	**2**	**2**			**5**			**E**	
2	S1115	physical education			**2**				**C**		
2nd semester (1st year)											
3	R1214	Fundamentals of pedagogy and curricular theory and methodology	**2**	**2**			**5**		**C**		
4	S1215	physical education			**2**				**C**		
3rd semester (2nd year)											
5	JPT2313	Geology of romania	**2**		**2**				**C**		
6	JPT2314	Elements of geotechnics	**2**		**2**				**C**		
7	JPT2317	Theory and methodology of teaching and evaluation	**2**	**2**			**5**			**E**	
8	S2318	physical education			**2**				**C**		
4th semester (2nd year)											
9	JPT2415	Limnology	**1**		**2**					**E**	
10	R2416	Didactics	**2**	**2**			**5**			**E**	
11	S2418	physical education			**2**				**C**		
5th semester (3rd year)											
12	JPT3513	Organisation of geographical space	**2**		**1**				**C**		
13	JPT3514	hydrographic network and littoral zone planning	**2**		**2**						**P**
14	R3516	Psychosociology of student groups	**1**	**2**			**4**		**C**		
15	JPT3517	pedagogical traineeship			**3**		**5**		**C**		
6th semester (3rd year)											
16	JPT3615	planning and management of forest ecosystems	**2**		**2**				**P**		
17	JPT3617	Pedagogical traineeship			**3**		**5**		**C**		
18	R3618	final evaluation. didactic portfolio			**1**		**1**		**E**		

Field: **GEOGRAPHY**

Specialization: **Hydrology and Meteorology**

Table I: Compulsory and elective subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	JHM1101	general geography (physical and human)	2	2			5			E	
2	JHM1102	Meteorology and Climatology	2		2		5			E	
3	JHM1103	Hydrology and Oceanography	2		2		5			E	
4	JHM1104	Cartography with elements of topography	2		2		5			E	
5	JHM1105	applied information technology	2		2		5		C		
6	L1106	foreign language	2	2			5		C		
2nd semester (1st year)											
7	JHM1207	General geology	2		2		5			E	
8	JHM1208	management and exploitation of atmospheric resources	2		2		5			E	
9	JHM1209	Geography of the population and of human settlements	2		2		5			E	
10	JHM1210	Geography of natural resources and economic geography	2		2		5			E	
11	L1211	foreign language	2	2			5		C		
12	JHM1212	field work					5		C		
3rd semester (2nd year)											
13	JHM2301	Geomorphology	2		2		5			E	
14	JHM2302	Topoclimatology and microclimatology	2		2		5			E	
15	JHM2303	Methodology of physico-geographical research	2		2		5			E	
16	JHM2304	specific planning problems regarding the areas with hydrologial risks	2		2		5			E	
17	JHM2305	elective subject	2		2		5		C		
18	L2306	foreign language	2	2			5		C		
elective subjects											
	JHM2305	world climate change	2		2		5		C		
	JHM2305	special issues regarding littoral geomorphology	2		2		5		C		
4th semester (2nd year)											
19	JHM2407	Biogeography	2		2		5			E	
20	JHM2408	soil geography with elements of pedology	2		2		5			E	
21	JHM2409	remote sensing, image interpretation and gis	2		2		5			E	
22	JHM2410	Bioclimatology	2		2		5			E	
23	L2411	foreign language	2	2			5		C		
24	JHM2412	field work					5		C		
5th semester (3rd year)											
25	JHM3501	physical geography of romania I	2		2		5			E	
26	JHM3502	environmental geography	2		2		5			E	
27	JHM3503	Geography of the continents- regional differentiation	2	2			5			E	
28	JHM3504	special problems of the romanian hydrology	2		2		5			E	
29	JHM3505	Geography of the black sea	2		2		5		C		
30	JHM3506	elective subject	2		2		5		C		
elective subjects											
	JHM3506	research methodology in human geography	2		2		5		C		
	JHM3506	quaternary paleogeography	2		2		5		C		
6th semester (3rd year)											
31	JHM3607	hydrological dynamics of deltas and estuaries	2		2		5			E	
32	JHM3608	synoptic meteorology and forecast	2		2		5			E	
33	JHM3609	natural and anthropic risks and hazards	2	2			5			E	
34	JHM3610	Measurements and calculations in meteorology and climatology	2		2		5			E	
35	JHM3611	physical geography of romania II	2		2		5		C		
36	JHM3612	integrate monitoring of air and water quality	2		2		5		C		
37	JHM3617	diploma paper					5			E	

Table II: optional subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	R1113	Psychology of education	**2**	**2**			**5**		**C**		
2	S1115	physical education			**2**				**C**		
2nd semester (1st year)											
3	JNMH1214	Fundamentals of pedagogy and curricular theory and methodology	**2**	**2**			**5**		**C**		
4	S1215	physical education			**2**						
3rd semester (2nd year)											
5	R2315	Theory and methodology of teaching and evaluation	**2**	**2**			**5**		**C**		
6	S2317	physical education			**2**				**C**		
4th semester (2nd year)											
7	JHM2413	agro-meteorology and forest meteorology	**2**	**1**					**C**		
8	JHM2414	Geography of transportation	**2**	**1**					**C**		
9	S2417	physical education			**2**				**C**		
5th semester (3rd year)											
10	JHM3513	earth volcanism and seismicity	**2**	**1**					**C**		
11	R3514	pedagogical subject	**1**	**2**			**5**		**C**		
12	JHM3515	Pedagogical traineeship		**3**			**5**		**C**		
6th semester (3rd year)											
13	JG3615	Pedagogical traineeship		**3**			**5**		**C**		

FIELD: **ENVIRONMENTAL SCIENCE**
SPECIALIZATION: **ENVIRONMENTAL GEOGRAPHY**

table I: compulsory and elective subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	P		D	C	E	M
1st semester (1st year)											
1	JM1101	General geography (physical and human)	2	2			5			E	
2	JM1102	Meteorology and Climatology	2		2		5			E	
3	JM1103	Hydrology and Oceanography	2		2		5			E	
4	JM1104	Biology (Botany, Zoology and Ecology topics)	2		2		5			E	
5	L1105	foreign language	2	2			5		C		
6	JM1106	applied information technology	2		2		5		C		
2nd semester (1st year)											
7	JM1207	General geology	2		2		5			E	
8	JM1208	remote sensing, photo-interpretation and gis	2		2		5		C		
9	JM1209	economic geography	2		2		5			E	
10	JM1210	environmental chemistry	2		2		5			E	
11	L1211	foreign language	2	2			5		C		
12	JM1212	field work					5		C		
3rd semester (2nd year)											
13	JM2301	environmental economy and management	2		2		5			E	
14	JM2302	Biogeography	2		2		5			E	
15	JM2303	human geography (population and settlements)	2		2		5			E	
16	JM2304	Geography of temperate and cold areas	2		2		5			E	
17	JM2305	elective subject	2		2		5		C		
18	L2306	foreign language	2	2			5		C		
elective subjects											
	JM2305	Geography of intertropical areas	2		2		5		C		
	JM2305	Geography of natural resources	2		2		5		C		
5th semester (2nd year)											
19	JM2407	Geomorphology	2		2		5			E	
20	JM2408	regional and local anthropic impact upon the environment	2		2		5		C		
21	JM2409	soil geography with elements of pedology	2		2		5			E	
22	JM2410	environment pollution and sustainable waste management	2		2		5		C		
23	L2411	foreign language	2		2		5		C		
24	JM2412	field work					5		C		
5th semester (3rd semester)											
25	JM3501	physical geography of romania	2		2		5			E	
26	JM3502	natural and anthropic risks and hazards	2		2		5			E	
27	JM3503	environmental geography I	2		2		5			E	
28	JM3504	environmental law- policies and strategies	2	2			5			E	
29	JM3505	cartography and ENVIRONMENTAL thematic mapping	2		2		5	P			
30	JM3506	ELECTIVE SUBJECT	2		2		5		C		
ELECTIVE SUBJECTS											
	JM3506	WORLD CLIMATE CHANGE	2		2		5		C		
	JM3506	REGIONAL GEOGRAPHY OF ROMANIA	2		2		5		C		
6TH SEMESTER (3RD YEAR)											
31	JM3607	ENVIRONMENTAL GEOGRAPHY II	2		2		5			E	
32	JM3608	human geography of romania	2		2		5			E	
33	JM3609	integrated environment monitoring	2		2		5		C		
34	JM3610	Methodology for the elaboration of impact studies	2		2		5	P			
35	JM3611	environment protection and conservation	2		2		5		C		
36	JM3612	Hydrogeology and hydrobiology	2		2		5		C		
37	JM3618	diploma paper					5			E	

Table II: optional subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	R1113	Psychology of education	**2**	**2**			**5**		**C**		
2	S1115	physical education			**2**				**C**		
2nd semester (1st year)											
3	R1214	Fundamentals of pedagogy and curricular theory and methodology	**2**	**2**			**5**		**C**		
4	S1215	physical education			**2**				**C**		
3rd semester (2nd year)											
5	R2315	theory and methodology of teaching and evaluation	**2**	**2**			**5**		**C**		
6	S2317	physical education			**2**				**C**		
4th semester (2nd semester)											
7	JM2413	Elements of biochemistry	**2**		**2**				**C**		
8	JM2414	Limnology	**2**		**2**				**C**		
9	JM2416	didactics	**2**	**2**			**5**		**C**		
10	S2417	physical education			**2**				**C**		
5th semester (3rd year)											
11	R3515	Psychosociology of student groups	**1**	**2**			**4**		**C**		
12	JM3516	pedagogical traineeship			**3**		**5**				
6th semester (3rd year)											
13	JM3613	Elements of statistics	**2**	**2**					**C**		
14	JM3614	Organisation of geographical space	**2**		**2**				**C**		
15	JM3616	Pedagogical traineeship			**3**		**5**		**C**		
16	R3617	final evaluation. didactic portfolio			**1**		**1**			**E**	

disciplines belonging to the **department for the training of didactic staff**

No.		*title of the discipline*	Type of discipline	Semester	l	S	p	ects	assessment
1		Psychology of education	optional	I	2	2		5	E1
2		Pedagogy I (Fundamentals of pedagogy and curricular theory and methodology)	optional	II	2	2		5	E2
3		Pedagogy II (Theory and methodology of teaching and evaluation)	optional	III	2	2		5	E3
4		Didactics	optional	IV	2	2		5	E4
5		elective subjects	optional	V	1	2		4	C5
6		Pedagogical traineeship (geography)	optional	V			3		C6
7		Pedagogical traineeship (geography)	optional	VI			3		
8		final evaluation – didactic portfolio		VI		1		1	E6
		Total number of hours per week/total number of credit points			9	11	6	30	

elective subjects (students will choose only one subject from this list)

1. Psychosociology of student groups
2. educational communication
3. integrative theory and practice in education

FIELD: GEOLOGICAL ENGINEERING

Specialization: GEOLOGICAL ENGINEERING – UNDERGRADUATE LEVEL

Table 1 Compulsory and elective subjects

No.	Code	Title	Number of hours/week				ECTS	Assessment			
			L	Ş	P	Pr.		D	C	E	M
1st YEAR, 1st Semester											
1	IG 1101	Physical Geology	2		2		5				M
2	M 1102	Mathematics	2	2			5			E	
3	IG 1103	Chemistry	2		2		5				M
4	IG 1104	Mining Topography	2		2		5	D		E	
5	IG 1105	Geoinformatics			3		5				M
6	L 1106	English/French		2			5		C		
1st YEAR, 2nd Semester											
7	IG 1201	Geostatistics	2		2		5				M
8	P 1202	Physics	2		2		5			E	
9	IG 1203	Palaeontology 1	2		2		5				M
10	IG 1204	Crystallography - Optical Mineralogy	2		2		5				M
11	IG 1205	Geological field work			4		5		C		
12	L 1206	English/French		2			5		C		
2nd YEAR, 1st Semester											
13	IG 2301	Mineralogy	2		2		5				M
14	IG 2302	Palaeontology 2	2		2		5				M
15	IG 2303	Planetary Geology	2		2		5				M
16	IG 2304	Sedimentary Petrology 1	2		2		5				M
17	L 2305	English/French		2			5		C		
Elective subjects											
18	IG 2306	Hydrogeology	2		2		5				M
19	IG 2307	Geological Photointerpretation	2		2		5	D		E	
2nd YEAR, 2nd Semester											
20	IG 2401	Sedimentary Petrology 2	2		2		5				M
21	IG 2402	Igneous Petrology	2		2		5				M
22	IG 2403	Structural Geology and Geological Cartography 1	2		2		5			E	
23	L 2405	English/French		2			5		C		
24	IG 2406	Geology field work			4		5		C		
Elective subjects											
25	IG 2407	Underground Hydraulics	2		2		5			E	
26	IG 2408	Mining Works	2		2		5	D		E	
27	IG 2409	Well Drilling Technology	2		2		5			E	
3d YEAR, 1st Semester											
28	IG 3501	Metamorphic Petrology	2		2		5	D		E	
27	IG 3502	Sedimentology and Stratigraphy 1	2		2		5	D	C	E	
29	IG 3503	Metallogeny 1	2		2		5				M
30	IG 3504	Structural Geology and Geological Cartography 2	2		2+1		5			E	
31	IG 3505	Economical Geology 1	2		2+1		5				M
Elective subjects											
32	IG 3506	Rock Mechanics	1		2		5	D	C		
33	IG 3507	Geotechnics	1		2		5	D	C		
3d YEAR, 2nd Semester											
35	IG 3601	Geological and Environmental Engineering	2		2		5	D	C		
36	IG 3602	Sedimentology and Stratigraphy 2	2		2		5				M
37	IG 3603	Applied Geophysics	2		2		5			E	
38	IG 3604	Metallogeny 2	2		2		5				M
39	IG 3605	Geological field work			4		5		C		
Elective subjects											
40	IG 3606	Marine Geology	2		2		5				M
41	IG 3607	Economical Geology 2	2		2		5				M
4th YEAR, 1st Semester											
42	IG 4701	Paleobotany and Palynology	2		2		5	D		E	
43	IG 4702	Micropalaeontology	2		2		5				M
44	IG 4703	Petroleum Geology	2		2+1		5	D		E	
45	IG 4704	Geology of Romania 1	2		2		5	D		E	
46	IG 4705	Petroliferous System Engineering 1	2		2+1		5			E	
Elective subjects											
47	IG 4706	Mineral and Thermal Waters	2		2		5				M
48	IG 4707	Quaternary Geology	2		2		5				M
4th YEAR, 2nd Semester											
49	IG 4801	Geoenvironmental Monitoring	2		2		5	D		E	
50	IG 4802	Geology of Romania 2	2		2		5	D		E	
51	IG 4803	Petroliferous System Engineering 2	2		2+1		5			E	
52	IG 4804	Geochemistry 2	2		2		5			E	
53	IG 4805	Coal Geology	2		2		5				M
54	IG 4806	Welling geophysics	2		2		5				M

Table 2 Optional subjects

No.	Code	Title	Number of hours/week				ECTS	Assessment			
			L	S	P	Pr.		D	C	E	M
1st YEAR, 1st Semester											
1	S 1107	Physical Education		2			5		C		
1st YEAR, 2nd Semester											
2	S 1207	Physical Education		2			5		C		
2nd YEAR, 1st Semester											
3	S 2308	Physical Education		2			5		C		
2nd YEAR, 2nd Semester											
4	S 2410	Physical Education		2			5		C		
partment for the training of didactic staff											
1	R 1113	psychology of education	**2**	**2**			**5**			**E1**	
2	R 1213	pedagogy 1	**2**	**2**			**5**			**E2**	
3	R 2313	pedagogy 2	**2**	**2**			**5**			**E3**	
4	R 2414	classroom management	**1**	**1**			**3**			**E6**	
5	R 3513	didactics of geology	**2**	**2**			**5**			**E4**	
6	R 3609	computer-assisted training	**1**	**1**			**2**		**C5**		
7	IG3509	pedagogical traineeship			**3**		**3**		**C6**		
8	IG 3610	pedagogical traineeship			**3**		**2**		**C6**		
		level I exam					**5**			**E6**	

FIELD: GEOLOGY

Specialization: GEOCHEMISTRY

Table 1 Compulsory and elective subjects

No.	Code	Title	Number of hours/week				ECTS	Assessment			
			L	S	P	Pr.		D	C	E	M
1st YEAR, 1st Semester											
1	GC 1101	Physical Geology	2		2		5				M
2	GC 1102	Physics of the Earth	2		2		5			E	
3	GC 1103	Chemistry	2		2		5				M
4	GC 1104	Mining Topography	2		2		5	D		E	
5	GC 1105	Geoinformatics			3		5				M
6	L 1106	English/French		2			5		C		
1st YEAR, 2nd Semester											
7	GC 1201	Crystallography - Optical Mineralogy	2		2		5				M
8	GC 1202	Analytical Chemistry 1	2		2		5				M
9	GC 1203	Geostatistics	2		2		5				M
10	GC 1204	Palaeontology 1	2		2		5				M
11	GC 1205	Geological field work			4		5		C		
12	L 1206	English/French		2			5		C		
2nd YEAR, 1st Semester											
13	GC 2301	Mineralogy	2		2		5				M
14	GC 2302	Analytical Chemistry 2	2		2		5				M
15	GC 2303	Planetary Geology	2		2		5				M
16	GC 2304	Instrumental Methods in Geosciences	2		2		5			E	
17	L 2305	English/French		2			5		C		
Elective subjects											
18	GC 2306	Seismic and Volcanic Hazards	2		2		5				M
19	GC 2307	Precious, Semiprecious and Decorative Stones	2		2		5				M
20	GC 2308	Welling Geophysics	2		2		5				M
2nd YEAR, 2nd Semester											
21	GC 2401	Structural Geology and Geological Cartography 1	2		2		5			E	
22	GC 2402	Igneous Petrology	2		2		5				M
23	GC 2403	Sedimentary Petrology 2	2		2		5				M
24	GC 2404	Hydrogeochemistry	2		2		5				M
25	L 2405	English/French		2			5		C		
26	GC 2406	Geology field work			4		5		C		
3d YEAR, 1st Semester											
27	GC 3501	Geochemistry 1	2		2		5			E	
28	GC 3502	Geology of Romania 1	2		2		5	D		E	
29	GC 3503	Metallogeny 1	2		2		5				M
30	GC 3504	Metamorphic Petrology	2		2		5				M
31	GC 3505	Economical Geology 1	2		2		5				M
Elective subjects											
32	GC 3506	Organic Geochemistry	2		2		5			E	
33	GC 3507	Physical Geochemistry	2		2		5			E	
34	GC 3508	Geochemistry of Colloids	2		2		5				M
3d YEAR, 2nd Semester											
35	GC 3601	Geochemistry 2	2		2		5			E	
36	GC 3602	Biogeochemistry	2		2		5				M
37	GC 3603	Environmental Geochemistry	2		2		5			E	
38	GC 3604	Applied Geophysics	2		2		5			E	
39	GC 3605	Economical Geology2	2		2		5				M
40	GC 3606	Atmospheric Geochemistry	2		2		5				M

Table 2 Optional subjects

No.	Code	Title	Number of hours/week				ECTS	Assessment			
			L	S	P	Pr.		D	C	E	M
1st YEAR, 1st Semester											
1	S 1107	Physical Education		2			5		C		
1st YEAR, 2nd Semester											
2	S 1207	Physical Education		2			5		C		
partment for the training of didactic staff											
1	R 1113	psychology of education	**2**	**2**			**5**			**E1**	
2	R 1213	pedagogy 1	**2**	**2**			**5**			**E2**	
3	R 2313	pedagogy 2	**2**	**2**			**5**			**E3**	
4	R 2414	classroom management	**1**	**1**			**3**			**E6**	
5	R 3513	didactics of geology	**2**	**2**			**5**			**E4**	
6	R 3609	computer-assisted training	**1**	**1**			**2**		**C5**		
7	IG3509	pedagogical traineeship			**3**		**3**		**C6**		
8	IG 3610	pedagogical traineeship			**3**		**2**		**C6**		
		level I exam					**5**			**E6**	

Field: **Geography**
Master's programme: **Tourism and regional development**

Table I: compulsory and elective subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	JTD1101	development theory and management	2	1			6			E	
2	JTD1102	Regions and regionalisation within the European union	2	1			6			E	
3	JTD1103	territorial manifestation forms of the touristic phenomenon	2		2		6			E	
4	JTD1104	touristic policies in romania and in the european union	1	2			6			E	
5	JTD1105	territorial development policies in romania and in the european union	1	2			6			E	
2nd semester (1st year)											
6	JTD1206	elective subject	2	2			6		C		
7	JTD1207	investigation techniques	2		2		6			E	
8	JTD1208	Statistics and data analysis	2		2		6			E	
9	JTD1209	thematic cartography and communication of research results	1		2		6			E	
10	JTD1210	optional specialized traineeship					6		C		
elective subjects											
	L1206	english applied to tourism	2	2			6		C		
	JTD1206	elaboration, management and evaluation of development projects	2		2		6		C		
	JTD1210	specialized traineeship in tourism					6		C		
	JTD1210	specialized traineeship in regional development					6		C		
3rd semester (2nd year) - *TOURISM module*											
11	JTD2301	Analysis of touristic systems: methods and instruments	2		2		6			E	
12	JTD2302	space economy applications in tourism	2		2		6			E	
13	JTD2303	environmental impact of tourism	1		1		6			E	
14	JTD2304	Tourism and patrimony	1		1		6		C		
15	JTD2305	elective subject	2	2			6		C		
elective subjects-*TOURISM module*											
	JTD2305	french applied to tourism	2	2			6		C		
	JTD2305	german applied to tourism	2	2			6		C		
4th semester (2nd year)- *TOURISM module*											
16	JTD2406	landscape geography	1		2		6		C		
17	JTD2407	touristic recovery of the mountainous areas by using alternative tourism	1		2		6			E	
18	JTD2408	touristic exploitation of littoral and deltaic regions	2		2		6			E	
19	JTD2409	sustainable touristic planning of the territory	2		2		6			E	
20	JTD2410	specialized traineeship in tourism					6		C		
	presentation of the dissertation paper	**6**									
3rd semester (2nd year)- *REGIONAL DEVELOPMENT Module*											
21	JTD2301	prospection of natural resources for sustainable development	2		2		6			E	
22	JTD2302	Prospection of human resources for sustainable development	2		2		6			E	
23	JTD2303	local development communities and policies in romania and in the european union	1		1		6		C		
24	JTD2304	Globalisation and regional development	1		1		6			E	
25	JTD2305	elective subject	2	2			6		C		
elective subjects - *REGIONAL DEVELOPMENT Module*											
	JTD2305	urban security	2	2			6		C		
	JTD2305	Studies of regional development	2	2			6		C		
4th semester (2nd year)- *REGIONAL DEVELOPMENT Module*											
26	JTD2406	rural spaces and regional development	2	2			6			E	
27	JTD2407	urban structures and territorial cohesion	1		2		6			E	
28	JTD2408	Cooperation, promotion and cross-border touristic development models	1		2		6		C		
29	JTD2409	evaluation and analysis of regional disparities	2		2		6			E	
30	JTD2410	specialized traineeship in regional development					6		C		
	presentation of dissertation paper	**6**									

Table II: optional subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
2nd semester (1st year)											
1	JTD1211	political geography in the context of sustainable development	**2**	**1**					**C**		
2	JTD1211	methods of assessing the anthropic pressure over the territory	**1**		**2**				**C**		
2nd semester (2nd year)- *TOURISM Module*											
3	JTD2411	Local, regional and global environmental policies	**2**		**1**				**C**		
2nd semester (2nd year) - *REGIONAL DEVELOPMENT Module*											
4	JTD2411	rural space planning	**2**		**1**				**C**		

field: **geography**
MASTER'S PROGRAMME: **Natural Hazards and Land planning**

Table 1: compulsory and elective subjects

No.	Code	Title of the subject	Number of hours/week				ECTS	Assessment			
			L.	S.	P.	Pr.		D	C	E	M
1st semester (1st year)											
1	JRA1101	assessment of climatic risks	**2**		**2**		**6**			**E**	
2	JRA1102	assessment of hydrological risks	**2**		**2**		**6**			**E**	
3	JRA1103	assessment and prognosis of pedological risks	**2**		**2**		**6**			**E**	
4	JRA1104	assessment and prognosis of geomorphological risks	**2**		**2**		**6**			**E**	
5	JRA1105	assessment of anthropic risks	**2**		**2**		**6**			**E**	
6	JRA1106	elective subject	**2**		**2**				**C**		
2nd semester (1st year)											
7	JRA1207	natural risk research methodology	**2**		**2**		**6**			**E**	
8	JRA1208	quantitative methods of assessment and prognosis of pedological risks	**2**		**2**		**6**			**E**	
9	JRA1209	methods of assessing the anthropic pressure over the territory	**2**		**2**		**6**			**E**	
10	JRA1210										
11	JRA1211	statistical and spatial analysis methods in land organisation and planning	**2**		**2**		**6**			**E**	
12	JRA1212										
3rd semester (2nd year)											
13	JRA2301	specialized traineeship					**6**		**C**		
14	JRA2302	elective subject	**2**		**2**				**C**		
15	JRA2303	management and usage of pedological patrimony									
16	JRA2304	terrain quality management and control	**2**		**2**		**6**			**E**	
17	JRA2305	modern methods and techniques of environmental depollution	**2**		**2**		**6**			**E**	
18	JRA2306	elective subject	**2**		**2**		**6**			**E**	
		elective subjects	**2**		**2**		**6**			**E**	
	JRA2304	elective subject	**2**		**2**		**6**			**E**	
	JRA2305	urban risks and their management									
	JRA2305	geomorphological risks incurred by anthropic activities	**2**		**2**		**6**		**C**		
		applied pedology	**2**		**2**		**6**		**C**		
		Usage of G.I.S. techniques in land planning	**2**		**2**		**6**		**C**		
4th semester (2nd year)											
19	JRA2407		**2**		**2**		**6**		**C**	**E**	
20	JRA2408	improvement of degraded agricultural land	**2**		**2**		**6**				
21	JRA2409	watercourse and wetland planning	**2**		**2**		**6**			**E**	
22	JRA2410	management and planning of forest areas	**2**		**2**		**6**		**E**	**E**	
23	JRA2411	elective subject	**2**		**2**		**6**				
24	JRA2412	elective subject	**2**		**2**		**6**			**E**	
presentation of dissertation paper		elective subject	**2**		**2**				**C**		
elective subjects		rural space planning	**2**		**2**		**6**		**C**		
	JRA2410	urban planning and policies	**2**		**2**		**6**		**C**		
	JRA2410	usage of nonconventional energy	**2**		**2**		**6**		**C**		
	JRA2411	ecologic reconstruction	**2**		**2**		**6**		**C**		

Table 2: optional subjects

No.	Code	Title of the subject	Number of hours/week					Assessment			
			L.	S.	P.	Pr.	ECTS	D	C	E	M
2nd semester (1st semester)											
1	JRA1106	assessment and prognosis of endogenetic risks	**2**	**2**					**C**		
2	JRA1212	digital and thematic cartography	**2**	**2**					**C**		
3rd semester (2nd year)											
3	JRA2306	territorial development policies in the european union	**2**		**2**				**C**		
4th semester (2nd year)											
4	JRA2412	landscape geography and planning	**2**		**2**				**C**		

field: **geography**
Master's programme: **Present environment and sustainable development**

Table 1: compulsory and elective subjects

No.	Code	Title of the subject	Number of hours/week					Assessment			
			L.	S.	P.	Pr.	ECTS	D	C	E	M
1st semester											
1	JM1101	environmental chemistry	**2**		**2**		**6**				
2	JM1102	atmospheric pollution and climate change	**2**		**2**		**6**				
3	JM1103	natural risks	**2**		**2**		**6**				M
4	JM1104	technological and social hazards	**2**		**2**		**6**			E	
5	JM1105	elective subject	**2**		**2**		**6**		**C**		
elective subjects										**E**	
	JM1105	Thermodynamics. hydrodynamics. dispersion	**2**		**2**		**6**		**C**	**E**	
	JM1105	toxicology. human health. current state, prognosis, prevention	**2**		**2**		**6**		**C**	**E**	
2nd semester (1st year)										**E**	
6	JM1206	planning of degraded agricultural land	**2**		**2**		**6**				
7	JM1207	Recycling of waste and residuum	**2**		**2**		**6**				
8	JM1208	urban planning and policies	**2**		**2**		**6**				
9	JM1209	elective subject	**2**		**2**		**6**		**C**		
10	JM1210	specialized traineeship					**6**		**C**		
elective subjects										**E**	
	JM1209	forest management and planning	**2**		**2**		**6**		**C**	**E**	
	JM1209	environmental police. attributions, regulations, prevention	**2**		**2**		**6**		**C**	**E**	
3rd semester (2nd year)											
11	JM2301	local, regional and global environmental policies	**2**		**2**		**6**				
12	JM2302	Monitoring. environment management in romania	**2**		**2**		**6**				
13	JM2303	digital and thematic cartography	**2**		**2**		**6**				
14	JM2304	water management. european principles and regulations	**2**		**2**		**6**				
15	JM2305	elective subject	**2**		**2**		**6**		**C**		
elective subjects										**E**	
	JRA2305	environment protection economy	**2**		**2**		**6**		**C**	**E**	
	JM2305	internal and international environmental law	**2**		**2**		**6**		**C**	**E**	
4th semester (2nd year)										**E**	
16	JM2406	natural and human potential of the environment. Perspective s	**2**		**2**		**6**				
17	JM2407	sustainable development and environmental issues	**2**		**2**		**6**				
18	JM2408	political geography in the context of sustainable development	**2**		**2**		**6**				
19	JM2409	Environmental surveys, impact studies and environmental management projects	**2**		**2**		**6**				
20	JM2410	elective subject	**2**		**2**		**6**		**C**		
presentation of dissertation paper **6**										**E**	
elective subjects										**E**	
	JM2410	Usage of nonconventional energy	**2**		**2**		**6**		**C**	**E**	
	JM2410	ecologic reconstruction	**2**		**2**		**6**		**C**	**E**	

Master's programme: WELLING AND ENVIRONMENTAL GEOLOGY

Table 1 Compulsory and elective subjects

No.	Code	Title	Number of hours/week				ECTS	Assessment			
			L	S	P	Pr.		D	C	E	M
1st YEAR, 1st Semester											
1	IG 5101	Biostratigraphy and Paleoecology	2		2		10				M
2	IG 5102	Special Topics in Petrology	2		2		10				M
3	IG 5103	Abnormal Pressures during Drilling	2		2		10				
1st YEAR, 2nd Semester											
4	IG 5204	Drilling Mud Fluids and Impact on the Environment	2		2		8	D		E	
5	IG 5205	Sequential Stratigraphy	2		2		8				M
6	IG 5206	Geothermal Evolution of Organic Matter	2		2		8			E	
7	IG 5207	Geological field work			4		6		C		
2nd YEAR, 1st Semester											
8	IG 6101	Applied Micropaleontology	2		2		10				M
9	IG 6102	Sedimentary Basins – Analysis and Survey	2		2		10			E	
10	IG 6103	Romanian Petroliferous Basins	2		2		10	D		E	
2nd YEAR, 2nd Semester											
11	IG 6204	Special Topics in Historical Geology	2		2		10				M
12	IG 6205	Advanced sedimentology	2		2		10				M
13	IG 6206	Geological field work	2		2		10		C		

Master's programme: ENVIRONMENTAL GEOCHEMISTRY

Table 1 Compulsory and optional subjects

No.	Code	Title	Number of hours/week				ECTS	Assessment			
			L	S	P	Pr.		D	C	E	M
1st YEAR, 1st Semester											
1	GC 4101	Chemical Analysis of Rocks and Ores	2		2		9				M
2	GC 4102	Spectrometry in Geosciences	2		2		9				M
3	GC 4103	Raman Spectrography	1		1		6				M
Elective subjects											
4	GC 4104	Isotopic Geochronology	1		1		6	D		E	
5	GC 4105	Geochemistry of Stable Isotopes	1		1		6				M
1st YEAR, 2nd Semester											
6	GC 4201	Geochemistry of the Earth's crust	2		2		8				M
7	GC 4202	Weathering of Rocks	2		2		8				M
8	GC 4203	Lithogeochemical Survey	2		2		8				E
9	GC 4204	Geochemical field work			4		6		C		
2nd YEAR, 1st Semester											
10	GC 5101	Geochemistry of Continental Waters	2		2		8				M
11	GC 5102	Radioactive Metal Geochemistry and Biogeochemistry	2		2		8				M
12	GC 5103	Soil Geochemistry and Pollution	2		2		8			E	
Elective subjects											
13	GC 5104	Geomicrobiology	1		1		6				M
14	GC 5105	Atmosphere Geochemistry and Pollution	1		1		6				M
2nd YEAR, 2nd Semester											
15	GC 5201	Geochemistry and Dynamics of Inorganic Pollutants	2		2		8				M
16	GC 5202	Water Treatment and Purification	1		2		7				M
17	GC 5203	Applied Geostatistics for Geochemical Modelling	2		2		8				M
18	GC 5204	Geochemical Hazards	1		2		7				M

II.6. SPECIFICATIONS RELATED TO OPTIONS FOR THE INDIVIDUAL ACADEMIC PATH

Each field of Bachelor Studies contains one or more academic specialities, which students choose the moment they are admitted or at the end of the first semester of study (the specialities of Geography, Tourism Geography, Land Planning or Hydrology and Meteorology in the case of the field of Geography).

These chosen specialities are called **main specialities**. At the same time, "Alexandru Ioan Cuza" University gives students the possibility of choosing a **complementary speciality** that can belong to another field of Bachelor Studies of the other faculties of our university.

The complementary speciality can be chosen, at the latest, at the end of the 2nd semester of the 1st year, as follows:

1. Students from the fields of **Geography**, **Environmental Science** and **Geology** can choose their complementary speciality from any other field of Bachelor Studies of the other 14 faculties of the "Alexandru Ion Cuza" University.
2. Students from the field of **Geological Engineering** (speciality: Geological Engineering) cannot choose a complementary speciality.

If a student does not choose a complementary speciality by the end of the 2nd semester, ***he or she loses the chance to become specialized in two fields of Bachelor Studies during the same study interval (3 years), an opportunity that only "Alexandru Ioan Cuza" University of Iasi offers***.

If after the first cycle of study the student **wishes to teach** he or she **will have to attend the courses of the Pedagogical module** that are held during the summer – after the regular academic year ends, thus obtaining the **30 credit points required by the law**.

EXAMPLE (an adaptation after "The Candidate's Guide", coordinated by Prof. Luminita Iacob, PhD).

To understand better, let us introduce George, one of your colleagues, who has decided to sign up this year for the selection contest held at the Faculty of Geography and Geology of "Alexandru Ioan Cuza" University. This faculty offers four fields of Bachelor Studies:

1. Geography
2. Environmental Science
3. Geology
4. Geological Engineering

George chooses Geography and he is admitted to this field at the end of the selection process.

CONGRATULATIONS, GEORGE. YOU ARE NOW A STUDENT AT „CUZA" UNIVERSITY !!!

On September 28th, 2009 George has begun his first year and is going to study 12 subjects, according to the curriculum, in order to gain **the knowledge and the general competences characteristic for the field of Geography**.

At the end of the 1st semester, George chooses ***as a speciality Geography*** (from the field of Geography), whose specific subjects he is going to study starting with his second year.

If George decides to have only this speciality, in the 2nd and 3rd year of his Bachelor Studies he will study ***24 academic subjects (12 subjects per year) that define the only speciality he has chosen***.

At the end of the 1st year of study, apart from his main speciality, which is Geography, George can choose a second speciality – a complementary one.

WHICH ARE GEORGE'S OPTIONS ?

George can choose his complementary speciality ***from any other field of Bachelor Studies from any of the other 14 faculties*** of "Alexandru Ioan Cuza" University.

An example would be his option to choose as a speciality Public Administration from the field of Bachelor Studies called Administrative Sciences of the Faculty of Economics and Business Administration. In this case, George's main speciality will be Geography, while his complementary speciality will be Public Administration. Each of these two specialities belongs to a different faculty from our university.

Independent of his option, George will study ***in the following 2 years 24 academic subjects, 12 subjects belonging to the main speciality, and the other 12 – to the complementary speciality***. The latter are all among the subjects of a main speciality of Bachelor Studies offered by one or the other of the faculties of our university.

The Socrates students who come to the Faculty of Geography and Geology have the obligation of submitting an application for temporary registration to the secretariat of the faculty in order to accumulate credit points and ***to mention the names of the subjects that they wish to study***, application that has to be approved by the Dean.

II.7. MANDATORY SUBJECTS FOR 120 CREDIT POINTS OF THE INDIVIDUAL ACADEMIC PATH

Department of GEOGRAPHY

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF GEOGRAPHY – specialization GEOGRAPHY						
1	Meteorology and Climatology	1	2		2	5
2	Hydrology and Oceanography	1	2		2	5
3	Geography of Natural Resources	1	2		2	5
4	Foreign Language	1		2		5
5	Applied Informatics	1	2		2	5
6	Economic Geography	2	2		2	5
7	Foreign Language	2		2		5
8	Practical Field Activities	2			4	5
9	Biogeography	3	2		2	5
10	Geography of Population	3	2		2	5
11	Geography of Europe	3	2		2	5
12	Geography of Tourism	3	2		2	5
13	Foreign Language	3		2		5
14	Geography of Soils with Elements of Pedology	4	2		2	5
15	Remote Sensing, Photointerpretation and Geographical Information Systems	4	2		2	5
16	Geomorphology	4	2		2	5
17	Foreign Language	4		2		5
18	Practical Field Activities	4			4	5
19	Physical Geography of Romania	5	2		2	5
20	Natural and Anthropic Risks and Hazards	5	2		2	5
21	Environmental Geography	5	2		2	5
22	Human Geography of Romania	6	2		2	5
23	Urban Geography and Rural Geography	6	2		2	5
24	Preparation of the Graduation Paper	6	2		2	5

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF GEOGRAPHY – specialization TOURISM GEOGRAPHY						
1	Meteorology and Climatology	1	2		2	5
2	Hydrology and Oceanography	1	2		2	5
3	Foreign Language	1		2		5
4	Applied Informatics	1	2		2	5
5	Economic Geography	2	2		2	5
6	Foreign Language	2		2		5
7	Practical Field Activities	2			4	5
8	Balneoclimatology	3	2	2		5
9	Geography of Population	3	2		2	5
10	Geography of Natural Zones of the World	3	2		2	5
11	Foreign Language	3		2		5
12	Geomorphology	4	2		2	5
13	Statistics and Accountancy in Tourism	4	2	2		5
14	Foreign Language	4		2		5
15	Practical Field Activities	4			4	5
16	Physical Geography of Romania	5	2		2	5
17	Tourism Economy and Management	5	2	2		5
18	Evaluation and Valorisation of Touristic Potential	5	2		2	5
19	Rural Geography and Agritourism	5	2		2	5
20	Touristic Centers and Regions	5	2	2		5
21	Human Geography of Romania	6	2		2	5
22	Geography of Services	6	2		2	5
23	Tourism Geography	6	2		2	5
24	Preparation of the Graduation Paper	6	2		2	5

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF GEOGRAPHY – specialization LAND PLANNING						
1	Meteorology and Climatology	1	2		2	5
2	Hydrology and Oceanography	1	2		2	5
3	Foreign Language	1	2	2		5
4	Applied Informatics	1	2		2	5
5	Cartography with Elements of Geomatics	2	2		2	5
6	Economic Geography	2	2		2	5
7	Foreign Language	2	2	2		5
8	Practical Field Activities	2	2		2	5
9	Theoretical Bases of Territorial Planning	3	2		2	5
10	Geography of Population	3	2		2	5
11	Topography with Elements of Geodesy	3	2		2	5
12	Foreign Language	3	2	2		5
13	Geomorphology	4	2		2	5
14	Urban Geography and Rural Geography	4	2		2	5
15	Remote Sensing, Photointerpretation and Geographic Information Systems	4	2		2	5
16	Foreign Language	4	2	2		5
17	Practical Field Activities	4	2		2	5
18	Physical Geography of Romania	5	2		2	5
19	Environment Geography	5	2		2	5
20	Land Survey and Cadastral Legislation	5	2		2	5
21	Human Geography of Romania	6	2		2	5
22	Territorial Systems and Regional Development	6	2		2	5
23	Elaboration of Territorial Planning Plans	6	2		2	5
24	Preparation of the Graduation Paper	6	2		2	5

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF GEOGRAPHY – specialization HYDROLOGY AND METEOROLOGY						
1	General Physical Geography	1	2		2	5
2	Meteorology and Climatology	1	2		2	5
3	Hydrology and Oceanography	1	2		2	5
4	Geography of Natural Resources	1	2	2		5
5	Applied Informatics	1	2		2	5
6	Foreign Language	2	2		2	5
7	General Geology	2	2	2		5
8	Cartography with Elements of Topography	2	2		2	5
9	General Human Geography	3	2		2	5
10	Economic Geography	3	2		2	5
11	Foreign Language	3	2		2	5
12	Biogeography	3	2		2	5
13	Topoclimatology and Microclimatology	3		2		5
14	Management and Capitalization of Hydrosphere Resources	4	2		2	5
15	Special Topics on the Planning of Hydrological Risk Regions	4	2		2	5
16	Elective Subject	4	2		2	5
17	Foreign Language	4	2	2		5
18	Geomorphology	4	2		2	5
19	Soil Geography with Elements of Pedology	5	2		2	5
20	Remote Sensing, Photointerpretation and Geographic Information Systems	5	2		2	5
21	Bioclimatology	5	2		2	5
22	Foreign Language	6	2		2	5
23	Practical Field Activities	6	2		2	5
24	Preparation of the Graduation Paper	6	2		2	5

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF ENVIRONMENTAL SCIENCE – specialization ENVIRONMENTAL GEOGRAPHY						
1	General Physical Geography	1	2		2	5
2	Meteorology and Climatology	1	2		2	5
3	Hydrology and Oceanography	1		2		5
4	Biology (Elements of Botanics and Zoology)	1	2		2	5
5	Foreign Language	2	2		2	5
6	Applied Informatics	2	2		2	5
7	General Geology	2	2	2		5
8	Cartography, Remote Sensing and Geographic Information Systems	2	2		2	5
9	Environmental Physics	3	2		2	5
10	Environmental Chemistry	3	2		2	5
11	Foreign Language	3	2	2		5
12	Environmental Geography II	4	2		2	5
13	Biogeography	4	2		2	5
14	General Biochemistry	4	2		2	5
15	Geography of Temperate and Cold Zones	4	2	2		5
16	Elective Subject	4			4	5
17	Elective Foreign Language	5	2		2	5
18	Foreign Language	5	2		2	5
19	Geomorphology	5	2		2	5
20	Environmental Geography II	6	2		2	5
21	Soil Science	6	2		2	5
22	Economic Geography	6	2		2	5
23	Foreign Language	6	2		2	5
24	Preparation of the Graduation Paper	6			4	5

Department of GEOLOGY

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF GEOLOGY – specialization GEOCHEMISTRY						
1	Physics of the Earth	1	2		2	5
2	Cristallography	1	2		2	5
3	General Chemistry	1	2		2	5
4	Mining Topography	1	2			5
5	Geoinformatics	1			4	5
6	Foreign Language	1	1	1		5
7	Mineralogy 1	2	2		2	5
8	Analytical Chemistry	2	2		2	5
9	Foreign Language	2	1	1		5
10	Mineralogy 2	2	2		2	5
11	Planetary Geology	3	2		2	5
12	Foreign Language	3	1	1		5
13	Instrumental Methods in Geosciences	4	2		2	5
14	Igneous Petrology	4	2		2	5
15	Sedimentary Petrology	4	2		2	5
16	Hydrogeochemistry	4	2		2	5
17	Foreign Language	4	1	1		5
18	Field work	4			4	
19	Metallogeny	5	2		2	5
20	Metamorphic Petrology	5	2		2	5
21	Economic Geology 1	5	2		2	5
22	Geochemistry 2	6	2		2	5
23	Environmental Geochemistry	6	2		2	5
24	Preparation of the Graduation Paper	6			4	5

II.8. SUBJECTS FOR THE COMPLEMENTARY ACADEMIC PATH

Department of GEOGRAPHY

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF GEOGRAPHY – specialization GEOGRAPHY						
1	Meteorology and Climatology	1	2		2	5
2	Hydrology and Oceanography	1	2		2	5
3	Geography of Natural Resources	1	2		2	5
4	General Geology	2	2		2	5
5	Cartography with Elements of Topography	2	2		2	5
6	Economic Geography	2	2		2	5
7	Geography of Population	3	2		2	5
8	Geography of Europe	3	2		2	5
9	Tourism Geography	3	2		2	5
10	Soil Geography with Elements of Pedology	4	2		2	5
11	Remote Sensing, Photointerpretation and Geographic Information Systems	4	2		2	5
12	Geomorphology	4	2		2	5
FIELD OF GEOGRAPHY – specialization TOURISM GEOGRAPHY						
1	Meteorology and Climatology	1	2		2	5
2	Hydrology and Oceanography	1	2		2	5
3	Geography of Natural Resources	1	2		2	5
4	Cartography and Geomatics in Tourism	2	2		2	5
5	General Human Geography	2	2		2	5
6	Economic Geography	2	2		2	5
7	Tourism Geography	3	2		2	5
8	Geography of Population	3	2		2	5
9	Geography of Natural Zones of the World	3	2		2	5
10	Remote Sensing, Photointerpretation and Geographic Information Systems	4	2		2	5
11	Geomorphology	4	2		2	5
12	Statistics and Accountancy in Tourism	4	2		2	5
DOMENIUL GEOGRAFIE – specializarea PLANIFICARE TERITORIALĂ						
1	Meteorology and Climatology	1	2		2	5
2	Hydrology and Oceanography	1	2		2	5
3	Geography of Natural Resources	1	2		2	5
4	Cartography with Elements of Geomatics	2	2		2	5
5	General Human Geography	2	2		2	5
6	Economic Geography	2	2		2	5
7	Theoretical Bases of Territorial Planning	3	2		2	5
8	Geography of Population	3	2		2	5
9	Topography with Elements of Geodesy	3	2		2	5
10	Geomorphology	4	2		2	5
11	Urban Geography and Rural Geography	4	2		2	5
12	Remote Sensing, Photointerpretation and Geographic Information Systems	4	2		2	5
DOMENIUL GEOGRAFIE – specializarea HIDROLOGIE ŞI METEOROLOGIE						
1	Meteorology and Climatology	**1**	2		2	5
2	Hydrology and Oceanography	**1**	2		2	5
3	Geography of Natural Resources	**1**	2		2	5
4	General Geology	**2**	2		2	5
5	Cartography with Elements of Topography	**2**	2		2	5
6	Economic Geography	**2**	2		2	5
7	Topoclimatology and Microclimatology	**3**	2		2	5
8	Management and Capitalization of Hydrosphere Resources	**3**	2		2	5
9	Special Topics on the Planning of Hydrological Risk Regions	**3**	2		2	5
10	Geomorphology	**4**	2		2	5
11	Soil Geography with Elements of Pedology	**4**	2		2	5
12	Bioclimatology	**4**	2		2	5
FIELD OF ENVIRONMENTAL SCIENCE – specialization ENVIRONMENTAL GEOGRAPHY						

1	Meteorology and Climatology	1	2		2	5
2	Hydrology and Oceanography	1	2		2	5
3	Biology (Elements of Botanics and Zoology)	1	2		2	5
4	General Geology	2	2		2	5
5	Cartography with Elements of Topography	2	2		2	5
6	Environmental Chemistry	2	2		2	5
7	Environmental Geography I	3	2		2	5
8	General Biochemistry	3	2		2	5
9	Biogeography	3	2		2	5
10	Environmental Geography II	4	2		2	5
11	Soil Science	4	2		2	5
12	Economic Geography	4	2		2	5

Department of GEOLOGY

No.	Title of subject	Semester	Number of hours			ECTS
			C	S	L	
FIELD OF GEOLOGY – specialization GEOCHEMISTRY						
1	Physics of the Earth	1	2		2	5
2	Cristallography	1	2		2	5
3	Mining Topography	1	2		2	5
4	Mineralogy 1	2	2		2	5
5	Geostatistics	2	2		2	5
6	Analytical Chemistry	2	2		2	5
7	Mineralogy 2	3	2		2	5
8	Planetary Geology	3	2		2	5
9	Seismic and Volcanic Hazards or Precious, Semiprecious and Decorative Stones or Welling Geophysics	3	2		2	5
10	Igneous Petrology	4	2		2	5
11	Sedimentary Petrology	4	2		2	
12	Hydrogeochemistry	4	2		2	5

II.9. CRITERIA USED BY THE FACULTY FOR THE ACADEMIC PATH

1. The repartition of students for one of the 4 specialities (Geography, Tourism Geography, Land Planning and Hydrology and Meteorology) of the field of Geography will be done at the end of the first semester of study, based on the options formulated by the students and their means, without exceeding the maximum number of students for each speciality.

2. The choice of a complementary speciality from other faculties of our university will be made at the end of the 2nd semester of the 1st year of study. Those who choose a complementary speciality must attend and pass the academic subjects included in the *List of Compulsory Subjects for 120 (180) credit points* from their main speciality.

3. In order to obtain the complementary speciality, 12 subjects (60 credit points) from the *List of Complementary Subjects* offered by each speciality from another faculty must be chosen.

II.10. RULES REGARDING THE EXAMINATION AND EVALUATION

Students are examined and assessed for each subject from the curriculum of a speciality, and they pass provided they complete certain tasks (attendance to didactic activities, the writing of a paper during the semester, the compiling of didactic portfolios etc.)

Each semester ends with a session of final evaluation (2 weeks) and, if necessary, with a special session for re-examinations and grade improvement (1 week).

The forms of assessment, the criteria based on which grades are received, the coverage of necessary credit points, the necessary bibliography etc. for each subject are brought to the attention of the students at the beginning of the semester by the main person in charge of teaching the subject.

The results of the evaluation are expressed in grades from 1 to 10, expressed through integers.

The final grade that results from the evaluation of the students at a certain subject is calculated as follows:

a) the results of a series of evaluations carried out throughout the semester account for ***at least 50%*** of the final grade (HS no. 6/2005);

b) the evaluation through final exam accounts for a ***maximum of 50%*** of the final grade.

For each of the two components of the final grade, ***the minimum grade with which a student can pass the subject is 5 (five)***.

A student who obtains at least 5 (five) at a subject from the curriculum also accumulates the ***credit points allotted to that particular subject*** (the *credit point* is a conventional means of measuring the average amount of work performed by the student necessary for the assimilation of the knowledge needed in order to pass a certain subject from the curriculum; it can be equated to 28-30 physical hours). At the Faculty of Geography and Geology, each subject is allotted 5 credit points. The total number of credit points for a semester is 30.

It is considered that a student has passed the year of study if he or she has received at least 5 (five) on all compulsory subjects and all elective subjects for which he has opted and has accumulated the number of credit points stipulated in the curriculum.

SOCRATES students are evaluated under the same conditions as the other students of the University.

II.11. FINAL EXAMS

All Bachelor Studies end with a diploma exam in the field in which the student has been registered. The exam takes place in front of Committee for the Bachelor Degree and consists of: a) ***an evaluation of the general knowledge of the specialty***; b) ***a presentation of the diploma paper***.

Any student who has legally graduated from a cycle of Bachelor Studies can sit in for this exam if he or she has accumulated ***at least 50%*** of the credit points of the field within our university or as part of other officially recognized institutions with which the University has signed partnership agreements, including ECTS.

The minimum grade necessary for the passing of the diploma exam is 6 (six).

The graduates that pass the diploma exam receive a degree in their field, confirmed through a ***diploma of Bachelor Studies***, accompanied by a ***supplement to the diploma***, in which the speciality or specialities of the student are mentioned, along with details of the didactic activity of the student throughout the years of study, according to the standard European format.

All Master Studies end with the defence in front of a committee of ***the dissertation paper***. The minimum grade necessary for passing is 6 (six).

SOCRATES students receive, at the end of their studies at the Faculty of Geography and Geology, the following documents:

a) a document containing all their grades and credit points that they have obtained, signed by the Dean, the Socrates coordinator and the head secretary;

b) a document signed by the Dean that mention the extent of the period in which the student attended the courses of the Faculty, the subjects studied by him or her, as well as a short description of the level of training he or she has reached.

II.12. ECTS COORDINATORS FOR EACH DEPARTMENT

Department of Geography – Teaching assistant Daniela LARION, PhD
Department of Geology – Associate Prof. Dan STUMBEA, PhD

II.13. DISCIPLINE RECORDS FROM THE CURRICULA (BACHELOR STUDIES)

In the following pages the discipline records, divided into fields and specializations, are presented. We underline the fact that the discipline records that are common to several specializations are described only once, the students being advised to search for the respective records at the first specialization which is described.

THE FIELD OF GEOGRAPHY

Speciality GEOGRAPHY

Anexa I

COURSE TITLE	**GENERAL PHYSICAL GEOGRAPHY**	CODE: JG1101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		1		28	47	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DAN LESENCIUC, PhD	Geography

PREREQUISITES	

OBJECTIVES	The general objectives of this course are to introduce to the first (1st) year students the specific issues of the geosystem. There are tackled structuring processes and interaction of abiotic and biotic components through the laws acting at planet scale, aiming at the genesis, composition, functioning, dynamics and their evolution.
COURSE CONTENTS	WEEK I: Defining geography and general physical geography; Geography branches and sub-branches; The relation between Geography and other sciences; Evolution of geographical concepts WEEK II: Principles, methods, processes and methods of research in physical geography WEEK III: The Universe; Formation and evolution of the Universe; Formation and evolution of galaxies WEEK IV: The Solar System. Formation and development; The planets of the Solar System WEEK V: Earth's position in the Solar System and its geographical consequences; Earth's shape and dimensions WEEK VI: The Earth's movements; Geographical consequences WEEK VII: Internal structure of the Earth; The relief of the Earth's crust; Agents, factors and modelling processes
PRACTICAL	The aim of the practical works is to show the relationships between Geography and other disciplines in the field of natural sciences, to demonstrate the importance of Physical geography in solving the problems of contemporary society, to contribute essentially to the acquisition of skills and abilities necessary for specific study and research in this branch of geography. WEEK I: Introduction: objectives, methods, work techniques. Preliminary concepts for defining the object of study of Geography. WEEK II: Research methods in Physical geography; WEEK III: The geosystem - general notions WEEK IV: The Universe – general characteristics, structure, components WEEK V: Theories of the formation of the Universe WEEK VI: The Solar System. The Sun. The planets WEEK VII: The rotation and the revolution movement of the Earth
TEACHING METHODS	Lecture, discussion, modelling – problematisation

RECOMMENDED READING	Richard John Huggett (2006) The Natural History of the Earth, Routledge Taylor & Francis Group, London and New York Kennet R. Lang (2006) Sun, Earth and Sky, Springer Science & Business Media, Singapore Mehedinți S. , Terra. Introducere în geografie ca ştiință. Ediția a II-a. Ediție îngrijită de Acad. Prof. dr. VICTOR TUFESCU membru al Academiei Române. Editura Enciclopedică. Bucureşti. Posea G., Iuliana Armaş (1998), Geografie fizică. Editura Enciclopedică. Bucureşti. Donisă I. (1987), Bazele teoretice şi metodologice ale geografiei, Edit. Univ. „AL.I.Cuza", Iaşi. Christopherson W. Robert, (1997), Geosystems. An Introduction to Physical Geography. Ed. Prentice Hall. U.S.A. Strahler H. Alan, Strahler N. Arthur (1992), Modern Physical Geography. John Wiley & Sons, Inc. U.S.A. Donisă Ioan, Boboc Nicolae, Donisă Angelica (1998), Geografie fizică generală. Ed. Ştiința. Chişinău

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work and written assessment
	Formula of the final mark	Evaluation of participation to activities during the semester and to the laboratory and final examination 50% Human geography assessment 50%

Anexa I

COURSE TITLE	**HUMAN GEOGRAPHY**	CODE: JG1101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1	1			28	47	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	Physical geography

OBJECTIVES	Assimilation of the fundamentals of human geography; Basic skills of reading and analysis of human geography texts; Acquirement of scientific writing skills in human geography
COURSE CONTENTS	Introduction to human geography; Modern geography; Philosophical support of modern geography: positivism. Classical German human geography. Classical French human geography. Diffusion and institutionalisation of classical geography. Quantitative geography. Philosophical support of quantitative geography: neopositivism. German spatial economy. The emergence and diffusion of quantitative geography; Spatial structures. The principles of space organisation. Postmodern geography. Postmodernism or postmodernity? Object and method of postmodern geography. Taxonomy of postmodern geography. Territory and territoriality. Fundamental concepts. Philosophical concepts on space. Ranking. Human geography among the scientific disciplines Taxonomy of human geography Classification of the sub-branches of human geography; Human geography in the present
PRACTICAL	Comment on the film „Anatomie du paysage"; Comment on the film „Physionomie du paysage". Comment on the film „Pathologie du paysage"; Bibliography in human geography. Work analysis Warf, B – Encyclopedia of Human Geography, Thousand Oaks, 2006; Formation of a bibliographic database in human geography; Cartographic analysis in human geography; Writing an essay in human geography; Scientific communication in human geography
TEACHING METHODS	Interactive course based on the use of media

RECOMMENDED READING	A. Bailly (dir.) – Les concepts de la géographie humaine, A. Colin, Paris, 2003; A. Bailly, D. Pumain (dir.) – Encyclopédie de géographie, Economica, Paris, 1996; M. Dear – The Postmodern Challenge : Reconstructing Human Geography, p. 262-274 in Transactions of the Institute of British Geographers, New series, vol. 13, No 3/1988; P. George – Sociologie et géographie, PUF, Paris, 1966; B. Goodall – Dictionary of Human Geography, London, 1986; O. Groza, I. Muntele – Geografie umană generală, Iaşi, 2005; O. Groza – Bazele teoretice ale planificării teritoriale, Iaşi, 2005; D. Harvey – Space and Capital. Towards a Critical Geography, Routledge, New York, 2001; Tuan, Yi-Fu – Space and Place. *The Perspective of Experience,* The Minnesotta University Press, Minneapolis, 2001; Witherick, M. S.Ross, J.Small – A modern dictionary of geography, London, 2001; Warf, B – Encyclopedia of Human Geography, Thousand Oaks, 2006

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**METEOROLOGY AND CLIMATOLOGY**	CODE: JG1102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor LIVIU APOSTOL, PhD	Geography

PREREQUISITES	

OBJECTIVES	Transmitting knowledge of the main laws that govern the occurrence and evolution of meteorological elements, phenomena and processes, of genetic factors and their evolution within a complex and unitary system. Explaining the dependency and inter-conditioning that exists in the evolution of meteorological processes. Presenting the basic notions of synoptic meteorology. Global-scale analysis of climatogenetic factors: solar radiation, the characteristics of the active underlying surface and the general circulation of the atmosphere. Presenting the global-scale distribution of the main climatic elements. Ensuring the knowing of the main principles that govern climatic classification, of the evolution of classification methods and of the parameters of climate types.
COURSE CONTENTS	**Meteorology – introductory notions. The terrestrial atmosphere** – origin, form, composition of the atmospheric air. Fundamental laws of gases. Density of atmospheric air. Vertical structure of the atmosphere/ **Solar, terrestrial and atmospheric radiation.** The Sun and the solar activity. The main laws of radiation. Spectral composition of the solar radiation. Direct solar radiation. Solar constant. Diffuse radiation. Global radiation. Reflected radiation. Albedo. Illumination and luminosity. Terrestrial and atmospheric radiation. Radiation – caloric balance at the terrestrial surface and in the atmosphere/**Temperature of the soil and of the large water surfaces.** Caloric properties of the soil. Heat propagation in the soil. Daily and annual regime of the soil temperature. Soil frosting. Thermal regime of the large water surfaces/**Air temperature.** Transport of heat in the atmosphere. Daily and annual air temperature regime. Adiabatic processes in the atmosphere. Conditions of vertical stability in the atmosphere. Thermal inversions/**Atmospheric pressure and wind.** Atmospheric pressure. Baric field. Genesis and characteristics of the wind. Local winds/**Water vapours in the atmosphere, their condensation and atmospheric precipitations.** Water phases system and measures that define air humidity. Evaporation. Vapours pressure and the relative humidity of the air. Condensation. Precipitations. Water balance on Earth/**Synoptic processes and weather forecasts.** Action centres. Air masses. Atmospheric fronts. Cyclones and anticyclones. Weather forecast/**Basic issues of climatology.** The concept of climate. Climatology and its branches/**Climatogenetic factors.** Solar radiation. The radiation-caloric balance and its components. The active underlying surface/General circulation of the atmosphere/**Geographic repartition of the main climate elements.** Temperature of the terrestrial surface and of the ocean. Air temperature. Air humidity/Geographic repartition of nebulosity and precipitations/**Classification and description of climates.** Climate classification. W. Köppen classification. B. P. Alisov/Description of geographical types of climate according to B.P. Alisov.
PRACTICAL	General organization: Week I: Classical meteorological equipment, 1/Week II: Classical meteorological equipment, 2/Week III: Automated meteorological stations. Radiometry. Meteorological platform. Meteorological station/Week IV: Data storage. Primary processing. Transmission. Meteorological service. Regional meteorological centres/Week V: Air samplings. Radar system. Meteorological satellites. Satellite images/Week VI: Synoptic map/Week VII: Weather forecast. Regional services of weather forecast. National Meteorological Administration. Accessing various forecasts/Week VIII: Climate data system. Methodological and basic bibliography for climate study/Week IX: Collection and primary processing of climate data/Week X: Climate indices/Week XI: Climate graphs/Week XII: Climate maps/Week XIII: Microclimate and topoclimate measurements. Topoclimate map/Week XIV: Knowledge evaluation.
TEACHING METHODS	Lecture and problematisation.

RECOMMENDED READING	Ahrens, C. D. (1991), *Meteorology today,* West Publishing Co, St. Paul, U.S.A. Ahrens, C. D. (1994), *Essentials of meteorology,* Wardsworth Publis. Co., Belmont, U.S.A. Apostol, L. (2000), *Meteorologie şi climatologie - Curs,* Edit. Univ. „Ştefan cel Mare" Suceava. Anthes, A. A. (1997), *Meteorology,* Prentice Hall, Upper Saddle River, New Jersey, U.S.A. Ciulache, S. (1973), *Meteorologie – manual practic,* Universitatea din Bucureşti.

ASSESSMENT METHODS	Conditions	Attendance of lectures and practical works
	Criteria	Learning the fundamental knowledge
	Way of evaluation	Test for practical work and partial and final written exam for the course
	Formula of the final mark	Partial exam 50% (of which 1/3 for the practical work); final exam 50% (of which 2/3 for the course and 1/3 for the practical work)

Anexa I

COURSE TITLE	**HYDROLOGY AND OCEANOGRAPHY**	CODE: JM1103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor GHEORGHE ROMANESCU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources.

OBJECTIVES	Knowledge of water as a natural substance, its occurrence forms in nature, the quantitative and qualitative characteristics, their distribution in the world, the relationships with the other components of the environment and its importance for people.
COURSE CONTENTS	I: Introduction. The history of the development of Hydrology/II: Hydrological sciences. Water in people's life. III: Water volume in nature. Myths and legends of water/IV: Hydro-geology. Springs/V: Potamology/VI: Potamology/VII: Potamology/VIII: Limnology/IX: Limnology/X: Snow and Ice – Glaciology/XI: Oceanography/XII: Oceanography/XIII: Oceanography/XVI: Oceanography
PRACTICAL	Weeks I, II, III, IV: Underground waters. Hydrological data processing in order to realize maps with hydro-isohyps and hydro-isobaths (isophreats) -Maps of hydro-isohyps; -Maps of hydro-isobaths (isophreats); -Hydro-geologic profile. -Spring mapping. Weeks V,VI,VII,VIII: Hydrographical basin and network -Watershed drawing; -Sinuosity coefficient of water shed; -Hydrographic basin area calculation; -Circular graph with the distribution of basinal and interbasinal areas; -Length and width of river basins. Asymmetry coefficient and marsh cover degree. -Average height of the river basin; -Longitudinal profile of the river; -River length and sinuosity coefficient; -Hydrographical scheme of rivers; -River network density. Weeks IX, X, XI, XII: Hydrometric network. -Level processing; -Level frequency and duration graph; -Hydrograd; Weeks XIII, XIV: River velocity and flow measurement methods
TEACHING METHODS	Lecture, conversation, problematisation, heuristic conversation and description, debate.

RECOMMENDED READING	
	Bravard J-P., Petit F. (2000), *Les cours d'eau. Dynamique du systčme fluvial,* Armand Colin, Paris. Cineti A. (1990), *Resursele de ape subterane ale României*, Edit. Tehnică, Bucureşti. Dussart B. (1966), *Limnologie. L'étude des eaux continentales*, Gauthier-Villars, Paris. Gâştescu P. (1998), *Hidrologie,* Edit. Roza vânturilor, Târgovişte. Goldman C.R., Horne A.J. (1983), *Limnology*, McGraw Hill Book Company, New York. Guilcher A. (1979), *Precis d'hydrologie (marine et continentale)*, Editions Masson, Paris. Hutchinson G.E. (1957), *A Treatise on Limnology*, Vol.I, Geography, Physics and Chemistry, Wiley, New York. Lliboutry L. (1965), *Traité de Glaciologie.Glaciars – Variations du Climat – Sols gelés*, Masson & Cie, Editeurs, Paris. Musy A. (1998), *Hydrologie appliquée,* Editions *H*G*A*, Bucarest. Romanescu Gh. (2000), *Resursele Oceanului Planetar*, Edit. Universităţii "Ştefan cel Mare", Suceava. Romanescu Gh. (2008), *Hidrologia uscatului*, Edit. Terra Nostra, Iaşi.

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**CARTOGRAPHY WITH ELEMENTS OF TOPOGRAPHY**	CODE: JG1104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Adrian GROZAVU, PhD	Geography

PREREQUISITES	

OBJECTIVES	Transferring to the students theoretical knowledge about the most important aspects of Cartography (field of study, historical evolution, cartographical products, methods of cartographical representation etc.) and about the basic problems of Topography (principles, instruments, methods of topographical survey), with the aim of ensuring that the students acquire the right skills necessary in the didactic activity and for scientific research application.
COURSE CONTENTS	1. Cartography (general presentation, development). 2. Cartographical products. 3. The map as basic cartographic product (characteristics, components, classification). 4. Methods of cartographical representation. 5. Topography (general presentation, use of coordinate systems in terrestrial measures, line orientation). 6. The measurement of distances. 7. The measurement of angles. 8. Planimetrical surveys. 9. Altimetrical surveys. 10. Photogrammetrical surveys.
PRACTICAL	Exercises of maps utilisation (reading and right interpretation, orientation, calculation and measurements etc.); Elaboration of graphical and cartographical materials; Achieving knowledge and skills for the use of topographical instruments and technologies; Using the achieved skills for practical field measurements and the elaboration of topographical maps and plans.
TEACHING METHODS	Lecture; demonstration using audio-visual means (video-projector) and substitutes (maps, graphics etc.); exercises

RECOMMENDED READING	1. Béguin, Michèle, Pumain, Denise, 2005, *La représentation des données géographiques. Statistique et cartographie,* Edit. Armand Colin, Paris; 2. Coteț P., 1954, *Metode de reprezentări cartografice*, Edit. Tehnică, Bucureşti; 3. Dumolard, P., Dubus, Nathalie, Charleux, Laure, 2003, *Les statistiques en géographie*, Edit. Belin, Paris; 4. Iosep, I., Grozavu, A., 2003, *Cartografie. Îndrumar de activități asistate pentru învățământ la distanță*, Edit. Universității "Ştefan cel Mare" Suceava; 5. Năstase, A., 1993, *Topografie cu elemente de cartografie generală,* Fundația "România de mâine", Univ. "Spiru Haret", Bucureşti; 6. Rouleau, B., 1991, *Méthodes de la cartographie,* Presses du CNRS; 7. Săndulache, Al., Sficlea, V., 1970, *Cartografie - topografie,* Edit. Didactică şi Pedagogică, Bucureşti; 8. Zanin, Christine, Trémélo, Marie-Laure, 2002, *Savoir faire une carte*, Edit. Belin, Paris;

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**APPLIED INFORMATION TECHNOLOGY**	CODE: JG1106

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LUDOVIC-STEFAN KOCSIS	Geography

PREREQUISITES	-

OBJECTIVES	Understanding and acquiring the opportunities and ways of utilisation of the computing systems and of the Information and Communication Technology in the geographic activity. Firstly, some concepts about the architecture of computing systems and about the data processing manners are approached, as well as the means of data input and output to and from the computing system. Subsequently, the process of utilisation of various software products useful to the didactic and scientific activity in general, with a specific emphasis on the geographic one, is studied.
COURSE CONTENTS	1. Architecture Of Computing Systems. 2. Concepts Of Data Processing. 3. Communications. Networks, The Internet. 4. Operating Systems. Software Products. 5. Utilisation Of The Windows Operating System. 6. Utilisation Of The Internet. 7. Utilisation Of Text Processing Software. 8. Utilisation Of Database Management Systems. 9 Utilization Of Spreadsheet Software. 10. Statistical Data Processing Using Spreadsheet Software. 11. Graphic Plots Obtained Using Spreadsheet Software. 12. Utilisation Of Assisted-Presentation Software. 13. Graphic Data. The Raster System, The Vector System. 14 Utilisation Of Raster Graphics Software. 15. Utilisation Of Vector Graphics Software. 16. Utilisation Of Web2.0 Tools For Geospatial Information
PRACTICAL	Using computers in the Geoinformatics and Remote Sensing Laboratory, students will become acquainted with the components of a Computing System, with the manner of utilisation of the MS Windows operating system, main services offered by the Internet and their usage, subsequently getting to know some software products specialized in the carrying out certain operations, such as the Microsoft Office package (Word, Excel, PowerPoint) for the creation of documents, management of databases, spreadsheet computing, statistics and graphic plots, as well as Adobe PhotoShop for the creating and editing of graphical data stored in raster system and CorelDraw for creating and editing graphical data stored in vector system.
TEACHING METHODS	Lecture, problematisation; practical course, exemplification

RECOMMENDED READING	1. Adobe Team (2002) – Adobe Photoshop 6, Editura Teora, Bucureşti 2. Bains S. (2002) – CorelDraw 10, Editura Teora, Bucureşti 3. Leonard W. (2002) – Microsoft Office XP, Editura Teora, Bucureşti 4. PC Webopaedia Definitions and Links: www.pcwebopaedia.com 5. Pilat F.V., Popa S., Deaconu S, Radu F (1995) – Introducere în Internet, Ed. Teora, Bucureşti 6. Tanenbaum, Andrew S. (1997) – Retele de calculatoare, Ed. Computer Press Agora, 1997. 7. Windows Microsoft Pages: http://www.microsoft.com/windows/windows-xp/default.aspx 8. http://google-latlong.blogspot.com/ 9. http://www.google.com/mapmaker 10. http://sketchup.google.com/

ASSESSMENT METHODS	Conditions	Attendance to course and practical work
	Criteria	Thorough acquisition of fundamental concepts taught during the course and techniques learned during practical work. Capability of using these techniques to solve real-world problems.
	Way of evaluation	Continuous evaluation during practical work, final examination
	Formula of the final mark	A*0,1+WG*0,1+EG*0,2+PPG*0,1+PSG*0,2+CDG*0,2+W2GG=FG, where: FG = final grade A = evaluation of attendance WG = evaluation grade for Microsoft Word EG = evaluation grade for Microsoft Excel PPG = evaluation grade for Microsoft PowerPoint PSG = evaluation grade for PhotoShop CDG = evaluation grade for de CorelDraw W2GG = evaluation grade for web2.0 tools for geospatial content

Anexa I

COURSE TITLE	**GENERAL GEOLOGY**	CODE: JG1207

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DELIA ANNE-MARIE ANDRONE**,** PhD	Geography

PREREQUISITES	-

OBJECTIVES	- comprehension and common use of notions and specific terms of geological disciplines - acquisition of basic knowledge in the specific fields - creation of competences in practical recognition of minerals and rocks - development of synthesis abilities regarding basic topics such as: Earth structure and evolution, geodynamics, tectonics and Geochronology
COURSE CONTENTS	***MINERALOGY –*** 1. Non-silicate minerals: native elements; sulphides; halides; oxides and hydroxides; carbonates; sulphates; nitrates; phosphates; chromates *etc.* 2. - Silicate minerals: nesosilicates; ring silicates; inosilicates; sheet silicates; tectosilicates. ***MAGMATIC PETROLOGY*** – Magmatic processes; magmatic ore deposits; magmatic rocks: acidic, intermediate, basic and ultrabasic. ***SEDIMENTARY PETROLOGY*** – Exogenetic factors; depositional processes and systems; post-depositional processes; sedimentary rocks: siliciclastic, evaporitic, phosphatic, clays, limestones *etc.* ***METAMORPHIC PETROLOGY*** – Metamorphic factors and processes; metamorphic facies and types; metamorphic rocks. ***EARTH AGE AND FORMATION*** – Establishment of the Earth's age; formation of the Earth and the Solar System; formation of the chemical elements and stellar evolution. ***EARTH STRUCTURE*** - Direct and indirect evidence; the crust; the mantle; the core; the importance of the lithosphere in internal geodynamics. ***INTERNAL GEODYNAMICS AND PLATE TECTONICS*** – Lithospheric tensions: distension and compression – the subduction; vertical movements of the crust; plate tectonics; ocean floor palaeomagnetism. ***VOLCANISM AND SEISMICITY*** – Volcanic activity products; eruption types and volcanic structures; global volcanism and volcanic risk; seismic waves; detecting and measuring earthquakes; global seismicity and seismic risk. ***STRUCTURAL GEOLOGY*** – Folds; faults; thrusts; geotectonic cycles. ***GEOCHRONOLOGY AND HISTORICAL GEOLOGY*** – Geochronology and geochronologic scale: Achaean; Proterozoic; Phanerozoic: Palaeozoic; Mesozoic; Neozoic. ***APPLIED GEOLOGY*** – Geotechnical studies; quarrying, mining, drilling etc.
PRACTICAL	1. Mineralogy (I) – Physical properties of minerals; 2. Mineralogy (II) – Minerals; 3. Mineralogy (III) - Minerals – Visit to the Faculty Museum; 4. Magmatic rocks (I); 5. Magmatic rocks (II); 6. Sedimentary rocks (I); 7. Sedimentary rocks (II); 8. Metamorphic rocks; 9. Structural geology (I); 10. Structural geology (II); 11. Geologic maps; 12. Geological transects; 13. Geochronologic scale (I); 14. Geochronologic scale (II); 15. Portfolio presentation; 16. Evaluation.
TEACHING METHODS	- lecture + PowerPoint presentation - heuristic conversation, debate - laboratory work with mineral and rock collections and with geologic maps.

RECOMMENDED READING	- ALLABY AILSA, ALLABY M. (2003) – *Dictionary of Earth Sciences.* Oxford University Press, U.K. - ANDRONE DELIA (2008) - *Geologie generală: Mineralogie* – curs vol. I, Ed. Tehnopress, Iaşi. - BUZGAR N. (2000) - *Petrologie sedimentară*, Ed. Uiversității „Al.I.Cuza", Iaşi. - GRASU C. (1997) - *Geologie structurală,* Ed. Tehnică, Bucureşti. - HAR N. (2005) – *Petrologie magmatică,* Casa cărții de ştiință, Cluj-Napoca. - IANCU O.G. (2007) - *Petrologie metamorfică*, Ed. Sedcom Libris, Iaşi - IANOVICI V., ŞTIOPOL V., CONSTANTINESCU E. (1979) – *Mineralogie,* Ed. Did.şi Ped., Bucureşti. - LUHR J.F. (2003) - *Earth.* First American Edition. Dorling Kindersley Inc., New York, U.S.A. - PALMER D. (2000) - *Atlasul lumii preistorice,* Ed. Aquila '93, Oradea. - SĂNDULESCU M. (1984) - *Geotectonica României,* Ed. Tehnică, Bucureşti. -TARBUCK E.J., LUTGENS F.K., PINZKE K.G. (2000) - *Applications and Investigations in Earth Science.* Third edition, Prentice Hall, Upper Saddle River – New Jersey, U.S.A.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**GEOGRAPHY OF EUROPE**	CODE: JG1208

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DANIELA LARION, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Understanding the general and regional characteristics of the European environment, understanding the zonality, the complex interactions among them and the way in which they have influenced the development of human activities; knowledge of the regional differences in the demographical and economic aspects.
COURSE CONTENTS	Physico-geographical characteristics of Europe (Location, limits, shores. Paleogeographic evolution. Landforms. Characteristics of the climate. European rivers and lakes. Vegetation, fauna and soils of Europe. Natural resources) Population (dymanics, density, evolution) and human settlements (rural and urban). EU – political and economic aspects Primary, secondary and tertiary activities in Europe Main characteristics of the following states: France, Germany, UK, Benelux, Spain Serbia, Albania, the Baltic States Ukraine, European Russia.
PRACTICAL	Devising and interpretation of special geographical maps (landforms, climate, hydrography, vegetation, population density, urbanism) Geographical video documentaries and slides on different topics – representative for each geographical region of Europe. Projects on regional aspects of Europe – focused on environmental problems. Knowledge of the European map (with periodical tests)
TEACHING METHODS	Lecture, problematisation, demonstration, interactive methods (PowerPoint presentations)

RECOMMENDED READING	1. Daniela Larion (2009) – *Geografia continentelor – Europa* , editia a IIa, Editura Azimuth, Iaşi 2. Pompei Cocean (2005) – *Geografia Europei*, Presa Universitară Clujeană, Cluj 3. I.Hârjoaba et.al.(1982) – *Geografia continentelor - Europa*, E.D.P. Bucuresti. 4. Silviu Negut et.al. – *Statele lumii*, Bucuresti, 1995, 1998. 5. Silviu Neguț et al (2001) – *Enciclopedia Europei*, Editura Meronia, Bucureşti 6. J. Bejeau-Garnier – *Images economiques du monde*, Paris, 1995-2008.

ASSESSMENT METHODS	Conditions	Compulsory attendance to practical work and participation to the tests
	Criteria	Fundamental knowledge aquisition, knowledge of the physical and political map of Europe
	Way of evaluation	Continuous evaluation during practical work Final exam
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**GEOGRAPHY OF NATURAL RESOURCES AND ECONOMIC GEOGRAPHY**	CODE: JG1209

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MARINELA ISTRATE, PhD Assistant Professor RADU DIMITRIU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Highlighting the main natural resources available to human society; Specifying their distribution, the degree to which they can be recovered and the means through which this can be achieved, and their consequences upon the humanized geographical landscape. Emphasizing the role of natural resources in the evolution of human society and the need to use them rationally, as a response to the needs of the population. Highlighting the development of businesses from a geographical point of view, as a way of understanding current issues. Deciphering geographical and economic phenomena that manifest themselves in the current period.
COURSE CONTENTS	Highlighting the main natural resources available to human society. Solar energy. Hydrosphere resources. Hydrocarbon resources. Sources of radioactive metal. Geographical features of the types of economic organization. Elements of Monetary Geography. Economic migrations.
PRACTICAL	Graphic and cartographic representation of the characteristic phenomena of the world economy (GDP, corruption, economic growth, the main resources of underground production and industrial products).
TEACHING METHODS	Lecture, discussion, modelling.

RECOMMENDED READING	Bacher P. (2000) – Quelle energie puor demain?, col.Convictions, Ed. Sciences, Paris. Brana V., 1986 – Substante minerale nemetalifere. Ed. Tehnica, Bucuresti. Cohen B., 1998 – The Geography of Money, Cornell University Press, Ithaca and London Brown Lester (coord.) – 2000 - 2004 – Probleme globale ale omenirii, Ed. Tehnica, Bucuresti. Laroche J.C. (2006) - Le defi energetique. De lepuisement des ressources au developpement durable, Les Editions de Paris. Păcurar Al., 2006 – Geografie economică mondială, Ed. Presa Universitară Clujeană Preda, G (coord.), 2004 – Valorificarea resurselor naturale, International University Press, Bucureşti. Primack Richard B., 2002 – Conservarea diversitatii biologice, Ed. Tehnica, Bucuresti. Ungureanu Al., 2000 – Geografia Resurselor Naturale, Univ. Alex.I.Cuza, Iasi. Ungureanu Al., 1985 – Geografia economică, Univ. „Al. I. Cuza", Iaşi

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**REMOTE SENSING AND IMAGE INTERPRETATION**	CODE: JG1210

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor DANIEL CONDORACHI, PhD	Geography

PREREQUISITES	Applied informatics, Cartography with elements of Topography

OBJECTIVES	Definition and importance of remote sensing and image interpretation in geosystem analysis; presentation of general issues of physics, GIS and image interpretation; the main processing algorithms for digital images and photos; definition and importance of GIS in geosystem analysis; presentation of the theoretical knowledge necessary for the design, implementation and management of a GIS and their applications in environmental, physical and human geography.
COURSE CONTENTS	1. General principles. The specs of the artificial satellites; 2. Spatial and temporal perception of the objects; 3. Digital images sources and their processing; 4. Geographical data extraction from images; 5. Image segmentation; 6. Dem generation from images; 7. Digital images integration in a GIS; 8. GIS-general principles, types and characteristics; 9. Data storage and representation in a GIS; 10. Data collection, input and updates techniques in a GIS; 11. Data conversion and processing; 12. Dem making and thematic layers, complex mapping; 13. GIS applications; 14. Displaying, printing and using the maps
PRACTICAL	The themes of the practical activities are in accordance with the themes of the course, updated every year, depending on the evolution and the modernisation of research and digital mapping methods
TEACHING METHODS	Lecture, problematisation

RECOMMENDED READING	Bonn, F., Rochon, G. (1992). *Précis de télédétection*. Vol. 1: Principes et méthodes. Sillery: PUQ. Cocquerez, J.P., Philipp, S. (2000). *Analyse d'images: filtrage et segmentation.* Paris: Masson. Appleton, J. (1996). *The Experience of Landscape*. Ed. Revazuta. Londra: John Wiley and Sons. Th.M. Lillesand et al. (2004) - *Remote Sensing and Image Interpretation*, , Ed. John Wiley & Sons P.A.Longley (2005) – *GIS and Science*, Ed. John Wiley and Sons. Maguire D.J., Goodchild M.F., Rhind D. (1991) - *Geographical Information Systems: Principles and Applications*, Longman Scientific and Technical

ASSESSMENT METHODS	Conditions	Attendance of practical activities and the gaining of minimum 1.5 points (out of maximum 3 points)
	Criteria	Assimilating the fundamental knowledge
	Way of evaluation	Exam=evaluated with 6 points + 1 point granted
	Formula of the final mark	Written exam (1-7 points) + practical activity (0-3 points)

Anexa I

COURSE TITLE	**GEOLOGY OF ROMANIA**	CODE: JG2301

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DORU TOADER JURAVLE, PhD	Geography

PREREQUISITES	General Geology, General Geography, Cartography and Topography

OBJECTIVES	1. Knowledge of the spatial distribution of the major morphostructures composing the Romanian territory; 2. Knowledge of platform unit structure, mineral and petrographic constitution, tectonics; 3. Knowledge of the structure of the Carpathian Orogenic, of the lithostratigraphic configuration of the tectonic units, as well as their tectonics; 4. Knowledge of the reflection of the geological configuration of the Romanian territory within the geographic structures and the palaeogeographical evolution of the territory.
COURSE CONTENTS	1. Formation of the platform and orogenic morphostructures in the light of the theory of global tectonics; 2. Spatial distribution of crust morphostructures (platform and orogenic) composing the Romanian territory; 3. Platform morphostructures, geological characterization; 4. Orogenic morphostructures, geological characterization; 5. Palaeogeographical evolution of the Romanian territory; 6. The relevance of geological research in the analysis of geographical dynamics within the geographical disciplines (physical geography, geomorphology, pedology, hydrology, climatology, territorial planning, environmental sciences and tourism).
PRACTICAL	1. Recognition of the main petrographic types composing the platform and orogenic units of the Romanian territory, based on their macroscopic properties; 2. Comprehension of geologic maps and drawing of geologic sections throughout the Romanian territory; 3. Acquisition of skills and abilities in using geologic maps in field work and geographic research (studies, projects, etc.).
TEACHING METHODS	Exposition, discussion, problematisation, petrographic and cartographic material analysis, individual study.

RECOMMENDED READING	Airinei (1979), *Teritoriul României şi tectonica plăcilor*, Ed. Şt. Şi Enciclopedică Buc.; Atanasiu (1988), *Petrologie sedimentară*, Ed. Tehnică, Buc.; Bleahu (1983, 1989), *Tectonica globală, vol. I, II,* Ed. Şt. Şi Enciclopedică Buc.; Brânzilă (1997), *Elemente de cartografie geologică*. Ed. Univ. "Al. I. Cuza" Iaşi; Ianovici et al. (1976), *Geologia Munților Apuseni*, Ed. Tehnică, Buc.; Ionesi (1994), *Geologia unităților de platformă şi a orogenului Nord-Dobrogean*. Ed. Tehnică, Bucureşti; Mutihac şi Ionesi (1974), *Geologia României*. Ed. Tehnică, Bucureşti; Filipescu (20002), *Stratigrafie*, Ed. Presa Univ. Cluj; Grasu (1987), *Geologie structurală*, Ed. Tehnică Buc.; Olaru et al. (2004), *Geologie fizică*, Ed. Univ. "Al. I Cuza" Iaşi; Mutihac şi Ionesi (1974), *Geologia României*. Ed. Tehnică, Bucureşti; Mutihac (1990), *Structura geologică a teritoriului României*. Ed. Tehnică, Bucureşti; Săndulescu (1984), *Geotectonica României.* Ed. Tehnică, Bucureşti; Rădulescu (1981), *Petrologie magmatică şi metamorfică*, Ed. Didact. Şi Pedag. Buc.; Țicleanu şi Pauliuc (2003), *Geologie generală*, Ed. Univ. Buc.; Tătârâm Nița (1984, 1988), *Geologie stratigrafică şi paleogeografie*, vol. I, II, Ed. Tehnică, Buc.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**BIOGEOGRAPHY**	CODE: JG2302

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2				56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor ANGLELA LUPASCU, PhD	Geography

PREREQUISITES	General physical geography, Climatology, Soil geography with elements of Pedology

OBJECTIVES	- acquiring theoretical knowledge regarding the habitat of living things on our planet - factors conditioning this dispersion: paleogeographic and ecological factors - linterpreting biogeographic phenomena in relation to the elements of the physical world - knowing the Globe's biogeographic zoning, as a consequence of the paleogeographic evolution and also of the present physico-geographical conditions - offering knowledge regarding biodiversity and the structure of the main terrestrial and aquatic biomes, with the purpose of raising awareness regarding the necessity of preserving the biotic potential
COURSE CONTENTS	1. The object of biogeography in relation to other disciplines. 2. The evolution and habitats of living things in the biosphere. 3. The organization of animal groups. 4. The influence of environmental factors on the development and dispersion of living things on Earth. 5. Globe's life domains (aquatic, terrestrial, subterranean). 6. Biogeographical regions of the Earth (Holarctic, Neotropical, African-Madagascar, Indo-Malaysian, Australian, Polynesian, Antarctic). 7. Biogeographical aspects of Romania. 8. Protecting and preserving biodiversity.
PRACTICAL	1. Classification of the animal kingdom. Inferior plants. 2. The Pteridophyta and Pinophyta. 3. Magnoliophyta 4. Vertebrata. 5şi 6. Herbal angiosperms. 7. Woody angiosperms. 8. Flora of the temperate and arctic areas. 9. Mediterranean, subtropical, tropical and desert floras. 10. Geographic areas and fitogeographic elements. 11. Bioforms. 12 and 13. Ecologic plant groups – ecologic spectra for the main ecologic factors (humidity, temperature, trophicity and soil reaction). 14. Sporo-polinic analyses as a work tool in biogeography.
TEACHING METHODS	Lectures, debates, problem solving
RECOMMENDED READING	Bănărescu P., Boşcaiu N.(1973) – *Biogeografie*, Ed.Şt.Bucureşti Botnariuc N. (1999) – *Evoluția sistemelor biologice supraindividuale*, Ed.Univ.din Bucureşti Braque R. (1988) – *Biogeographie des continents*, Masson editeurs, Paris Cristea V. (1993) – *Fitososciologie şi vegetația României*, Ed.Univ.Babeş-Bolyai Lupaşcu A. (2004) – *Biogeografie*, Ed.Terra nostra Iaşi Pişotă I. (1999) – *Biogeografie*, Edition du Goeland, Bucureşti Pop I. (1979) –*Biogeografie ecologică*, Vol.I şi II, Ed.Dacia, Cluj-Napoca Primack B.R., Pătroescu M., Rosy Lowicz L., Ioja C. (2002) – *Conservarea diversității biologice,* Ed.Tehnică, Buc.

ASSESSMENT METHODS	Conditions	Attendance to practical classes
	Criteria	Active participation o practical activities, acquiring of the basic knowledge
	Way of evaluation	Written and oral examination
	Formula of the final mark	Test (8th week) - 50% Written exam - 50 %

Anexa I

COURSE TITLE	**GEOGRAPHY OF POPULATION**	CODE: JG2303

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor IONEL MUNTELE, PhD	Geography

PREREQUISITES	General (physical and human) geography; Economical Geography

OBJECTIVES	Presentation of the essential characteristics of the global population: distribution, dynamics, structure and geographical mobility
COURSE CONTENTS	1.Theories of the population-geographical approach 2. Spatial distribution of the population 3.The evolution of the human settlement of the World 4.The dynamics of the global population 5.The structure of the population 6.The geographical mobility of the population
PRACTICAL	1. Graphical transformation of the statistical information about the spatial distribution, dynamics, structure and mobility of the population 2. Analysis of graphic materials in the geographical study of the population 3. Analysis of geographical bibliography concerning the study of the population 4. Periodical evaluation
TEACHING METHODS	1. Lectures with video-projections 2. Problematisation and heuristic conversation

RECOMMENDED READING	Erdeli, G., Dumitrache, L., Geografia populației, Corint, Bucureşti, 2002 Ungureanu, Al. (coord.), Moldova – populația, forța de muncă şi aşezările în tranziție, Corson, Iaşi, 2001 Ungureanu, Al., Muntele I, Geografia populației, Sedcom Libris, Iaşi, 2006

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final evaluation
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**TOURISM GEOGRAPHY**	CODE: JG2305

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	- pointing out the main features of the world touristic activities from a geographical point of view: distribution of the touristic potential, factors, forms, flows, regions, types, impact on the environment - analysis of the main spatial parameters of tourism: distribution, dynamics, structures and economic impact - understanding the role of touristic activities in space planning and sustainable development - understanding the role of touristic activities in creating several socio-cultural models
COURSE CONTENTS	W 1 – Introduction. Geography of tourism in an interdisciplinary context W 2-3 – Origins of tourism and its historical evolution W 4 – Location of touristic activities W 6-8 – Touristic potential – concept, definition, spatial distribution W 9-12 – Touristic flows – major flows, minor flows, spatial distribution W 13-14 – Protection of the touristic heritage. Touristic policies for planning and development.
PRACTICAL	-graphical representation of statistic information on the spatial distribution of the main elements of the touristic potential and of the touristic flows -use of cartographic materials in the study of the touristic phenomenon -use of literature in the field in order to understand the main concepts for the geographical study of the touristic phenomenon
TEACHING METHODS	Lectures using the video-projector Problematisation and heuristic conversation.

RECOMMENDED READING	Muntele, I., Geografia turismului, Univ.Al.I.Cuza, Iasi, 2000 Muntele I., Iatu C., Geografia turismului, Sedcom Libris, Iasi, 2003 Sacareau, I., Géographie du tourisme, Nathan, Paris, 2000 Cazes, G., L'espace touristique, A.Collin, 1996 Lozato-Giotart, J.P., Géographie du tourisme, Masson, Paris, 1992

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**SOIL GEOGRAPHY WITH ELEMENTS OF PEDOLOGY**	CODE: JG2407

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor CRISTIAN SECU, PhD	Geography

PREREQUISITES	Meteorology and climatology, General geology, Biogeography

OBJECTIVES	Knowing the soil forming factors. Acquiring the processes that contribute to soil profile formation. Understanding the organization mode of soil classification systems (SRTS, 2003, WRB-SR, 2006, Soil Taxonomy, 2006). Soil distribution and characteristics at the global level.
COURSE CONTENTS	Soil forming factors (rock, relief climate, water regime, biotic component and human influence); Processes that contribute to soil profile formation. Soil components and their properties (The solid, liquid, gaseous components and soil organic matter) Soil chemical properties (Cationic exchange capacity, soil reaction). Soil classification systems (SRTS, 2003, WRB-SR, 2006, Soil Taxonomy, 2006). World's soil resources.
PRACTICAL	Soil horizons (formation, physical, chemical and morphologic characteristics, association with soil types). Soil colour. Soil structure. Soil neoformations. Soil field sampling, completing the soil survey files (field application). Soil taxonomy, its notation as soil formula. Soil pH determination and interpretation of the results. Determination of the soil total content of soluble salts and interpretation of the analyses. Determination of the carbonate content and the interpretation of the results. Determination of soil humidity and water deficiency and data interpretation (1 hour dedicated to field application). Soil temperature. General elements of soil mapping.
TEACHING METHODS	Lecture, discussions, video presentations, field activities, laboratory practical activities

RECOMMENDED READING	**Duchaufour P.,** 1982, *Pedology, Pedogenesis and classification*, George Allen Uniwin, London. **Gerrard, J.,** 2000, *Fundamentals of Soil*, Routlege Fundamentals of Physical Geography, London. **Hillel D., Rosenzweig C., Powlson D., Scow K., Singer M., Spark D.,** 2004, *Encyclopedia of Soil in the Environment*, Academic Press; 1 edition, 2004, p. 2200 **Ianoş, Gh.,** 1999, *Pedogeografie*, Edit. Mirton, Timişoara. **IUSS Working Group WRB**, 2006, *World reference base for soil resources 2006,* World Soil Resources Reports No. 103, FAO, Rome. **Lupaşcu, Gh., Jigău, Gh., Vârlan, M.,** 1998, *Pedologie generală*, Edit. Junimea, Iaşi. **Schaetzl R. J, Anderson S.,** 2005, *Soils: Genesis and Geomorphology,* Cambridge University Press, p. 817 ***Secu*** C. V., Patriche C. V., **2007, *Solurile lumii. Clasificare, răspândire, caracteristici,* ediția a doua, Edit. Terra Nostra, Iaşi, p. 317** **Secu C. V., Rusu C.,** 2007, *Geografia solurilor cu elemente de pedologie*, Edit Univ. Al. I. Cuza, Iaşi, p. 287 **Van Breemen N., Buurman P.,** 2002, *Soil Formation*, second edition, Kluwer Academic Publishers, p. 404

ASSESSMENT METHODS	Conditions	Carrying out the practical activities
	Criteria	Passing the first and second evaluation with at least the minimum mark (5)
	Way of evaluation	Continuous and final evaluation (written and spontaneous)
	Formula of the final mark	*Continuous* (50%) (c 27 questions x 2p+Lp18 questions x 2p + 1 ex officio + *final* (50%) evaluation (colloquium Lp 4p + written ex. 5 p)

Anexa I

COURSE TITLE	**REMOTE SENSING, AERIAL PHOTO-INTERPRETATION AND G.I.S.**	CODE: JG2408

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor ROMAN AURELIAN-NICOLAE, PhD	Geography

PREREQUISITES	Informatics, Cartography

OBJECTIVES	Remote sensing introduction; implementing the importance and complexity of Remote sensing and Aerial photo-interpretation application, which are essential in geosystem analysis. Defining and emphasising the role of Remote sensing and Aerial photo-interpretation in the physiognomy, functionality and structure analysis of land use and inductive risks. Acquiring advanced knowledge in Physics, Geographic information systems and Aerial photo-interpretation. Emphasizing the specific applicative character of main G.I.S techniques; principles, main aspects, methods, tools and results of risks and land use analysis using G.I.S techniques and methods. GIS design, implementation and management techniques.
COURSE CONTENTS	Week I: Remote sensing principles. Characteristics of artificial satellites/Week II: Perception of spatial and temporal objects /Week III: Main images sources. Image processing principles/Week IV: Geographic information extraction from images/Week V: Image segmentation/Week VI: Building DEM and derivates from images/Week VII: Satellite and aerial images inside GIS/Week VIII: GIS principles/Week IX: Data structures and representation in GIS/Week X: Data collection and update in GIS/Week XI: Data conversion and processing/Week XII: DEM, thematic layers and complex cartographic design/Week XIII: GIS applications/Week XIV: Displaying, printing and disseminating information with GIS
PRACTICAL	Week I: Software platforms for GIS/Week II: Image display and enhancement/Week III: Main image sources. Image processing methods/Week IV: Geographic information extraction from images/Week V: Image segmentation/Week VI: Building DEM and derivates from images/Week VII: Satellite and aerial images inside GIS/Week VIII: Exploring differences between GIS and desktop publishing software/Week IX: Data structures and representation in GIS/Week X: Data collection and update in GIS/Week XI: Data conversion and processing/Week XII: DEM, thematic layers and complex cartographic design/Week XIII: GIS applications: project design and implementation/Week XIV: Displaying, printing and disseminating information with GIS
TEACHING METHODS	Lecture, debate, case studies, on-screen demos, forwarding environmental issues and brainstorming

RECOMMENDED READING	Bonn, F., Rochon, G. (1992). *Précis de télédétection*. Vol. 1: Principes et méthodes. Sillery: PUQ. Cocquerez, J.P., Philipp, S. (2000). *Analyse d'images: filtrage et segmentation.* Paris: Masson. Appleton, J. (1996). *The Experience of Landscape*. Ed. Revazuta. Londra: John Wiley and Sons. Th.M. Lillesand et al. (2004) - Remote Sensing and Image Interpretation, , Ed. John Wiley & Sons P. A. Longley (2005) – GIS and Science, Ed. John Wiley and Sons. Maguire D.J., Goodchild M.F., Rhind D. (1991) - *Geographical Information Systems: Principles and Applications*, Longman Scientific and Technical

ASSESSMENT METHODS	Conditions	Laboratory attendance (min. 75%)
	Criteria	Active involvement in laboratory activities
	Way of evaluation	Oral and written evaluation
	Formula of the final mark	**FINAL EVALUATION = (Mark I + Mark II) / 2** **I. 7th week** –50% of final mark Minimum mark is obtained from: 1. relevant participation to discussions and laboratories – 20 %; 2. projects – 20%; 3. knowledge evaluation test (lectures + laboratories) – 60%. **II. 14th week** –50% of final mark Idem **Mark up-grade and re-evaluation** - scheduled in the 17th week; - Ist and IInd point marks still remain valid; - re-evaluation test includes all lecture and laboratory material;

Anexa I

COURSE TITLE	**GEOMORPHOLOGY**	CODE: JG2409

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	P + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor ION IONIȚĂ, PhD	Geography

PREREQUISITES	General Physical Geography; General Geology

OBJECTIVES	- assimilation of the theoretical knowledge needed for the knowing of both relief types and the main relief forms; - acquisition of the practical experience necessary for the elaboration of geomorphological maps; - introduction of key concepts necessary for the geomorphological study of a territory.
COURSE CONTENTS	Section I – Geomorphology as a science. Section II – Planetary Geomorphology – Age and evolution of the Earth. Advances in the research of the oceanic crust and the relief; Theory of global tectonics. Section III Morpho-structure – Platform regions; Landforms of horizontal and monoclinal structures. Landforms of wide corrugated structures; Relief within the faulted structures. Orogen landscape. First week of assessment Section IV – Morpho-lithology – Petrographic landforms (on granites, sandstones, conglomerates, clays). Petrographic landforms (loessian relief and karst topography). Section V – Morphosculpture - General; Slope processes and the morphology induced by them. River morphology. Glacial and periglaciar landforms. Coastal landforms; Anthropogenic impacts on morphogenesis.
PRACTICAL	Week I: Knowledge and geomorphologic analysis of topographic maps. Week II: Geomorphological profile – definition, types. Week III: Hypsometric map. Week IV: Map of the fragmentation density of landforms. Week V: Map of slopes - slope inclination determination. Week VI: Recognition of the cuesta relief on topographic maps and drawing up of the profiles. Week VII: Field work within the Moldavian Plateau. Week VIII: First week of assessment. Week IX: Recognition of landforms on folded structures. Week X: Mass movements on the maps - Morphometric variables of landslides. Week XI: Representation of the torrential bodies. Methods for the mapping of gyllies. Week XII: Field work on the Moldavian Plain. Morphology of the channels and floodplains. Week XIII: River terraces - morphological elements, altitude and the number of terraces. River captions - elements of recognition. Week XIV: Conventional signs used in geomorphology. Geomorphologic maps – Definition, classification, drawing. Week XV: Field trip with geomorphologic mapping exercises. Week XVI: Second week of assessment.
TEACHING METHODS	-lectures supported by the video projector and overhead projector; -problems of interest and heuristic conversation.

RECOMMENDED READING	- Băcăuanu, V. (1989) – Geomorfologie, Editura Univ. „Al.I.Cuza", Iaşi. **- Bloom, L.A. (1988) – Geomorphology. A Systematic Analysis of Late Cenozoic Landforms. Prentice Hall.** - Ioniță, I. (2000) – Geomorfologie aplicată, Edit Univ. „Al.I.Cuza" Iaşi. - Posea, Gr. et al (1970) – Geomorfologie generală, Edit. Did.şi Pedagogică, Buc. - Summerfield M. (1997) – Global geomorphology. Oxford University.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical works (out of a maximum of 3 points) Compulsory attendance to practical works
	Criteria	Thorough assimilation of key concepts on the field; The capacity of synthesising the acquired knowledge in a wider geographical context; Ability to apply the acquired knowledge to specific situations.
	Way of evaluation	Continuous evaluation during practical works and oral examination
	Formula of the final mark	10% for course attendance; 30% for attendance and activity during the practical works; 30% first assessment and 30% second assessment.

Anexa I

COURSE TITLE	**THE METHODOLOGY OF PHYSICO-GEOGRAPHICAI RESEARCH**	CODE: JG2410

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DAN LESENCIUC, PhD	Geography

PREREQUISITES	General (physical and human) geography

OBJECTIVES	The course aims to present the research methodology from the level of the physical-geographical system, using a number of peculiarities of the regional approach to the components of a physical-geographical structure and the relationships between them.
COURSE CONTENTS	1.THE OBJECTIVE OF PHYSICO-GEOGRAPHICAL RESEARCH 2. GENERAL AND PARTICULAR METHODS USED IN PHYSICO-GEOGRAPHICAL RESEARCH 3. QUANTITATIVE METHODS USED IN PHYSICAL GEOGRAPHY 4. RESEARCH STAGES NECCESARY IN THE ELABORATION OF A PHYSICO-GEOGRAPHICAL STUDY 5. THE ESTABLISHMENT OF DEFINING ELEMENTS FOR A GOOD STIENTIFIC RESEARCH OF THE PHYSICO-GEOGRAPHICAL UNITS 6. THE ESTABLISHMENT OF PHYSICO-GEOGRAPHICAL LIMITS AND THE PROBLEMS RELATED TO THEM 7. INTERPRETATION OF GEOLOGICAL ELEMENTS 8. INTERPRETATION OF GEOMORPHOLOGICAL ELEMENTS 9. TACKLEMENT OF CLIMATIC ELEMENTS RELATED TO THE PHYSICO-GEOGRAPHICAL UNITS 10. HYDROLOGICAL RESEARCH IN PHYSICO-GEOGRAPHICAL STUDY 11. THE STUDY OF BIOGEOGRAPHICAL ELEMENTS 12. SOIL RESEARCH IN THE PHYSICO-GEOGRAPHICAL APPROACH 13. PROBLEMS RELATED TO THE PHYSICO-GEOGRAPHICAL REGIONALIZATION 14. PROBLEMS RELATED TO THE PHYSICO-GEOGRAPHICAL REGIONALIZATION
PRACTICAL	THE AIMS OF THE PRACTICAL WORKS ARE TO EMPHASIZE THE APPLICATIVE SIDE OF THE COURSE BY PRACTISING SOME ELEMENTS RELATED TO RESEARCH MEANT TO HELP THE STUDENTS WRITE THEIR OWN DIPLOMA PAPER. WEEK I: THE APPLICABILITY OF THE PHYSICO-GEOGRAPHICAL RESEARCH METHODS/WEEK II: THE USAGE OF QUANTITATIVE METHOD IN GEOMORPHOLOGY/WEEK III: THE USAGE OF QUANTITATIVE METHOD IN HYDROLOGY/WEEK IV: THE USAGE OF QUANTITATIVE METHOD IN CLIMATOLOGY/WEEK V: THE USAGE OF QUANTITATIVE METHOD IN BIOGEOGRAPHY/WEEK VI: THE PROBLEM OF PHYSICO-GEOGRAPHICAL LIMITS/WEEK VII: THE ELABORATION STAGES OF GEOMORPHOLOGICAL STUDIES/WEEK VIII: THE ELABORATION STAGES OF GEOMORPHOLOGICAL STUDIES/WEEK IX: THE ELABORATION STAGES OF CLIMATOLOGICAL STUDIES/WEEK X: THE ELABORATION STAGES OF CLIMATOLOGICAL STUDIES/WEEK XI: THE ELABORATION STAGES OF HYDROLOGICAL STUDIES/WEEK XII: THE ELABORATION STAGES OF HYDROLOGICAL STUDIES/WEEK XIII: THE ELABORATION STAGES OF BIOGEOGRAPHICAL STUDIES/WEEK XIV: PHYSICO-GEOGRAPHICAL REGIONALIZATION
TEACHING METHODS	Course based on problematisation

RECOMMENDED READING	Bălteanu D. (1983) Experimentul de teren în geomorfologie, Edit. Acad. Bucureşti; Goudie A, 1990 Geomorphological technigues, by Unwin Hyman, USA and Canada Hubbard B, Glasser N, Field, 2005, Techniques in glaciology and glacial geomorphology, John&Sons, Ltd, England Morariu T., Velcea Valeria (1971) Principii şi metode de cercetare în geografia fizică, Edit. Acad. Bucureşti; Nimigeanu V, 1984 Metodologia cercetărilor geografice regionale, Edit. Univ. Al.I.Cuza Iaşi

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**RESEARCH METHODOLOGY IN HUMAN GEOGRAPHY**	CODE: JG2410

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		64	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor GEORGE TURCANASU, PhD	Geography

PREREQUISITES	Human Geography (Population and Settlements), Thematic Art Cartography and Communication of Research Results, Urban Structures and Territorial Cohesion, Geomatics

OBJECTIVES	Collating major research themes in contemporary geography Collating principles, methods and means of research in human geography Acquiring specific methods of quantitative analysis used in the study of human geography Creating design skills and proper use of maps in drafting a scientific paper -training skills and analytical reading of texts of human geography; scientific writing skills – training in human geography
COURSE CONTENTS	1. Geographical research in the context of science 2. The great themes of geographical research 3. Principles and methods of research. Principles and methods of research 4. The means of geographical research, documentation and bibliographic sources 5. Classification and regionalization 6. Methods and means of thematic cartographic representation 7. Thematic mapping approach in geoscience (topic, issue, documentation, objectives, assumptions) 8. Production, value and geographical distribution of a product. 9. Communication of results in human geography.
PRACTICAL	Week I: Techniques of representation in thematic cartography. Week II: Implementation of meta-databases; Week III: Techniques for processing and interpretation of data necessary in human geography; Week IV: Types of geographical writing / drafting of revisions Week V: Elaboration of a human geography article / setting and mesh classes in cartography; Week VI: Elaboration of a human geography article / Automatic and manual digitization of a map fund; Week VII: Elaboration of a human geography article / types of cartographic representation Week VIII: Elaboration of a human geography article / construction and use of statistical databases needed in thematic mapping; Week IX: Elaboration of a human geography article / construction and use of statistical databases needed in thematic mapping; Week X: Elaboration of a human geography article / types of cartographic representation Week XI: Elaboration of a human geography article / from the basic map to the complex map Week XII: Elaboration of a human geography article / thematic maps (at county level) Week XIII: Elaboration of a human geography article / thematic maps (at county level) Week XIV: Elaboration of a human geography article / conclusion - complete article (at county level)
TEACHING METHODS	Exposition, conversation, modelling, description

RECOMMENDED READING	
	- R. Brunet: *Le déchiffrement du Monde*, Belin, Paris, 2001 - N.J. Clifford; G. Valentine: *Key Methods in Geography*, Sage Publications, London, 2006 - M. Cosinschi: *Cartographie Thématique*, Institut de Géographie ; Université de Lausanne, 1997 - Donisă I., bazele teoretice şi metodologice ale Geografiei, UAIC, Iasi, 1987 - G.D. Garson, R.S. Biggs: *Analytic Mapping and Geographic Databases*, series: Quantitative Application in the Social Sciences, A Sage University Paper N˚ 87, Newbury Park, CA, 1992

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**PHYSICAL GEOGRAPHY OF ROMANIA**	CODE: JG3501; JG3607

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	5, 6	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		112	188	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CONSTANTIN RUSU, PhD	Geography

PREREQUISITES	Geology of Romania, Geomorphology, Climatology, Hydrology, Biogeography, Pedology

OBJECTIVES	Having in view the student preparation plan for the first cycle of three years, the course structure implies the sequential treatment of the physico-geographical system components, insisting less on the specific regionalization aspects. **-introductory aspects** (field of study, geographical position, research history): 1 hour/**the time factor in the formation of Romania's physico-geographical system**: 4 hours: stages of paleogeographical evolution and morpho-structural units (3 hours); geologic formations and useful mineral substances (1 hour)/**Romania's relief, polarizing component and control factor in the physico-geographical system**: 10 hours. This chapter depicts Romania's relief, seen as a polarizing component and control factor in the physico-geographical system. Special attention is given to the following problems: morphometric and morphographic features (1 hour); structural relief inherited from pre-Quaternary evolution stages (1 hour); cyclic relief (1 hour); piedmonts and glacises (1 hour); structural and petrographic relief (1 hour); glacial and periglacial relief (1 hour); fluvial relief (1 hour); present relief modeling (1 hour); regional relief sub-systems (1 hour); the role and functions of the relief in the physico-geographical system (1 hour)/**atmosphere and climate and their functions in the physico-geographical system** (4 hours): approaches the following problems: genetic climate factors (1 hour); characterization of the main climatic elements (2 hours); regional climatic differences and climate functions in the physico-geographical system (1 hour)/**the hydric component and its functions in the physico-geographical system** (4 hours). During this chapter, the hydric component is analyzed under all its forms, situated at the contact between the lithosphere and the lower part of the gaseous cover. The underground waters, the hydrographic network and lakes (2 hours), the Romanian litoral of the Black Sea (1 hour) and the hydrogeographic regionalization of the country (1 hour) are analyzed, and afterwards the functions of the hydric component in the physico-geographical system are presented (1 hour)/**vegetation and its role in the physico-geographical system**: 2 hours. This chapter approaches problems regarding the origin, evolution and laws of vegetation occurrence, the type of spontaneous vegetation in Romania, the anthropic changes and their functions in the physico-geographical system/**fauna**: 1 hour. The origin, evolution and regionalization of the fauna, the peculiarities and the geographic occurrence of the terrestrial and aquatic fauna, as well as the role and functions in the physico-geographical system are presented successively/ **soil – derived component of the physico-geographical system**: 2 hours. The main quantitative-qualitative characteristics of the soil forming factors, the main soil classes and types from Romania and their repartition on the country territory, the soil functions in the physico-geographical system are analyzed successively.
COURSE CONTENTS	The themes of the practical applications are in agreement with the general themes and the research methodology, regarding the acquiring of knowledge that cannot be sufficiently detailed during the course. - the geographic position of Romania; paleogeographical sketches of the evolution of the Romanian territory in its characteristic stages (Pre-Paleozoic-Quaternary) and the characterization of the main morpho- structural units (case studies)/the analysis of the morphographic and morphometric features of Romania's relief (map sketches, geomorphologic profiles etc./glacial problems in Romania and features of the cyclic relief in the Romanian Carpathians /structural relief differentiations and the specificity of the petrographic relief (sketches and maps, examples on large morphologic areas)/present geomorphologic processes and their role in modeling Romania's relief/analysis of the main climatic factors and the devising of map sketches of the main climatic elements/graphical representations of the main types of hydrologic regime, types of hydrographic network and morphometric characteristics of hydrographic basins (orogen and platform areas)/hydrogeologic features, lake genesis and types (video)/geographic repartition of the main floristic and faunal elements (video)/presentation of the soil horizons and specific diagnosis elements of the Romanian Soil Taxonomy System. Main soil types/problems of environmental protection and natural reservations of Romania. Case study
PRACTICAL	The themes of the practical applications are in agreement with the general themes and the research methodology, regarding the acquiring of knowledge that cannot be sufficiently detailed during the course. There will be approached a series of applicative aspects both during the laboratories and the field applications.
TEACHING METHODS	Lectures, questioning, problem solving with the help of modern presentation methods (laptop, video projector)

RECOMMENDED READING	
	Bojoi I. (2000) - *Geografia fizică a României*, Ed.Univ."Al.I.Cuza" Iaşi. Irimuş I.A. (2003) - *Geografia fizică a României*, Casa Cărţii de Ştiinţă, Cluj-Napoca Mihăilescu V. (1963) - *Carpaţii sud-estici*, Ed.Şt şi Enciclop, Bucureşti. Mihăilescu V. (1966) - *Dealurile şi câmpiile României*, Ed.Şt şi Enciclop, Bucureşti. Mihăilescu V. (1969) - *Geografia fizică a României*, Ed.Şt.şi Enciclop, Bucureşti. Posea Gr. (2002) – *Geomorfologia României*, Ed. Fundaţiei România de Mâine, Bucureşti

ASSESSMENT METHODS		
	Conditions	Attendance to practical classes, carrying out the specific activities
	Criteria	Acquiring fundamental knowledge corresponding to the course themes and objectives
	Way of evaluation	Oral examination
	Formula of the final mark	50% semester check + 50% final exam. For the semester check the grade represents the average between the mark received for practical activities and that obtained at the oral exam. The same procedure applies for the final verification, by taking into consideration the activities from the second part of the semester. In order to pass the subject, one needs passing marks at both verifications.

Anexa I

COURSE TITLE	**NATURAL AND ANTHROPIC RISKS AND HAZARDS**	CODE: JG 3502

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor, Adrian GROZAVU, PhD	Geography

PREREQUISITES	Cartography; General physical geography; Geographical research methodology

OBJECTIVES	Analysing the risk phenomena or events having natural or anthropic origin and high potential for producing victims, material damages, ecological disequilibrium etc. Presenting the forms of manifestation and effects, identifying the causes and possible versions of management of these phenomena. Forming the ability for the research and utilization of the information and of statistical data for the analysis and interpretation of the concrete situations linked with the occurrence of risk phenomena. Practical materialization of theoretical knowledge concerning the possibilities of management, elaboration of support-materials for the activity of prevention and dismissing of risk phenomena effects.
COURSE CONTENTS	1. Hazard and risk – conceptual and methodological framing (terminology, classification of hazards, evaluation methodology). 2. Geological hazards and risks. 3. Geomorphological hazards and risks. 4. Climatic hazards and risks. 5. Oceanographical, hydrological and biological hazards and risks. 7. Anthropic hazards and risks.
PRACTICAL	1. Analysis and interpretation of risk situation (seismic, geomorphological, climatic, hydrological etc.). 2. Drawing up graphical and cartographical material (vulnerability maps, risk maps). 3. Elaboration and presentation of portfolios concerning the analysis of risk phenomena, on optional topics.
TEACHING METHODS	Lecture; demonstration using audio-visual means (video-projector) and substitutes (maps, graphics etc.); problematisation.

RECOMMENDED READING	1. Bennett, B., 2007, *Understanding, assessing, and responding to terrorism: protecting critical infrastructure and Personnel*, John Wiley & Sons, New Jersey; 2. Bogdan, Octavia, Niculescu, Elena, 1999, *Riscurile climatice din România*, Academia Română, Bucureşti; 3. Ciulache, S., Ionac, Nicoleta, 1995, *Fenomene geografice de risc,* Edit. Universității Bucureşti; 4. Dauphine, A., 2000, *Risques et catastrophes: observer, spatialiser, comprendre, gérer*, Armand Colin, Paris; 5. Goțiu, Dana, Surdeanu, V., 2007, *Noțiuni fundamentale în studiul hazardelor naturale*, Presa Universitară Clujeană, Cluj-Napoca; 6. Mândrescu, N., 2000, *Cutremurul – hazard natural major pentru România,* Edit. Tehnică, Bucureşti; 7. Pine, J. C., 2009*, Natural Hazards Analysis. Reducing the Impact of Disasters*, CRC Press, London; 8. Smith, K., Petley, D., 2009, *Environmental hazards. Assessing risk and reducing disaster*, Routledge, London; 9. Stângă, I. C., 2007, *Riscurile naturale. Noțiuni şi concepte*, Edit Universității Al. I. Cuza, Iaşi; 10. Wisner, B. et al., 2004, *At risk: natural hazards, people's vulnerability and disasters*, Routledge, London;

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**ENVIRONMENTAL GEOGRAPHY**	CODE: JG3503

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant ADRIAN URSU	Geography

PREREQUISITES	General Geology, Meteorology, Hydrology, Pedology, Geomorphology, Ecology, Human Geography, Physical Geography

OBJECTIVES	1 The course aims at a systemic integration of the analytical knowledge in geography, in a progressive manner; 2. Knowledge of the fundamental organization of systems followed in terms of functionality; 3. Knowledge of the role of self-regulation and adjustment in the orientation of the whole system towards dynamic equilibrium or towards malfunction / breakdown. ; 4. Knowledge of basic environmental issues, presented at the national and global scale; 5. Applying knowledge of Environmental geography in finding remedies for these problems.
COURSE CONTENTS	Introduction: The evolution of the concept of Environmental geography; General notions of systems; Geosystem structure: non-living system; biotic system; social and economic system; Movement in geosystem; Transfer and movement of substance, energy, information, freedom of movement in geosystem, continuity, threshold discontinuity; Dynamic equilibrium, risk, hazard, dysfunctional imbalance, degradation, functionality; Levels of organization of the geosystem. Spatial entities from functional hierarchy; Geosystems and time; Geosystem control; Protection and conservation of geosystems, Concepts, motivations, factors involved in the protection and conservation, protection and preservation organisation; Legislation and Environmental Education. Evaluation - Grade I
PRACTICAL	General Organisation: 1. Organisation of discussions on the fundamental problems of the environment at a global scale; 2. Drawing up of individual projects to certify ownership by students of the concepts presented; 3. Field visits to examples discussed 4. Discussion topics: General system concepts; Creating an individual project aimed at the application of systemic concepts on a chosen topic; Environmental issues: Lithosphere Exploitation; Conventional energy and non-conventional energy; Environmental issues: Oceans and seas; Environmental Issues: Inland waters; Climate change and ozone layer; Organic versus conventional farming; Human impact on the landforms; Endangered Species, Bioinvasion; Social Issues; Evaluation - Grade II
TEACHING METHODS	Lecture, discussion, modelling

RECOMMENDED READING	**Brown L.** (1990-2004) - *Starea lumii,* Ed. Tehnică, Bucarest **De Groot W. T.** (1992) – *Environmental science theory,* Elsevier Publ. H. **Donisă I.** (1977) – *Bazele teoretice şi metodologice ale geografiei,* Ed. Didactică şi Pedagogică, Bucharest **Durand D.** (1990) – *La systémique,* Presses Univ. de France, Paris **Georgescu-Roegen N.** (1979 – *Legea entropiei şi procesul economic,* Ed. Politică, Bucharest **Odum E.P.** (1971) – *Fundamentals of ecology*, Sunders, Londres **Rekacewicz Ph.(2000)-"***Les chantiers de l'environnement a l'Est*;Le Monde Diplomatique, iulie **Rougerie G.** (1988) – *Géographie de la biosphère*, Ed. A. Colin, Paris **Stiner F.R., Van Lier H.N.** (1984) – *Land conservation and development*, Elsevier Publ. H., Amsterdam **Stugren B.** (1994) – *Ecologie teoretică*, Ed. Sarmis, Cluj **Ungureanu Irina (2002)- "***Geografia mediului",Universitatea "* Al.I. Cuza",Iasi **Veyret-Mekdjian Yvette (2001)** -*"Geographie des risques naturels",* **Young P. C.** (1993) – *Concise encyclopaedia of environmental systems,* Pergamon Press

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**TERRITORIAL ORGANIZATION AND PLANNING**	CODE: JG3504

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Understanding territorial prganization and planning in the perspective of mastering the space at different levels and scales. Understanding the logics and organization ways of a territory and its importance. Empasizing the factors that ensure the spatial coherence of the society and of the territorial planning measures. Global understanding of the problems, techniques and methods of the territorial dynamics and development. Formation of good „territorial specialists" in order to give a reliable diagnosis to the territories, to define the development axes and strategies, to elaborate the action plans and realization strategies.
COURSE CONTENTS	W1 Introduction. Planning sources. W 2-3 Territorial planning and organization instruments. W 4 Evolution of the intervention ways in terms of territorial organization and planning. W5 Strategic and prospective methods. W 6-7 Stages for the elaboration of a territorial planning plan W 8, 9, 10-12 National Territory Planning Scheme (PATN) W 13 Urban system planning W 14 Agricultural and rural planning W 15 Industrial region planning
PRACTICAL	Knopwledge of the methods and techniques for spatial analysis Elaboration of a project for territorial planning on a certain administrative level (locality, county, region) Understanding the interventions and the forms of action in the service of territorial development.
TEACHING METHODS	Interactive lecture; presentations using the video-projector

RECOMMENDED READING	Benedek József, (2004) - *Amenajarea teritoriului si dezvoltarea regională*, Presa Universitară Clujeană, Cluj-Napoca. Cornel Mitoiu , Mihai Stan, Ioan Gheorghe Lupan, (2003) - *Amenajarea teritoriului*, Ed. Bren, Bucureşti. Eckert Denis (1992) – *Evaluation et prospective des territoires*, Reclus, Paris. Bold I., (1974) - *Organizarea teritoriului*, Editura Ceres, Bucureşti Schoumaker Bernadette Mérenne (1996) – *La localisation des industries*, Nathan, Paris. Racine, J.B., Ungureanu, Al., Cosinschi, Micheline, Donisă, V., Groza, O., Iațu, C., Muntele, I., (1998) – *Maillages géographiques de la Roumanie*, Lausanne. Ionaşcu Gheorghe S., (2003) – *Amenajarea teritoriului*, Editura Fundatiei "Romania de Maine", Bucureşti. Minea Elena Maria, (2003) - *Amenajarea teritoriului*, Accent, Cluj-Napoca. Lacour Claude (1983) – *Aménagement du territoire et développement régional*, Dalloz, Paris.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**GEOGRAPHY OF EXTRA-EUROPEAN CONTINENTS**	CODE: JG3505

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor EUGEN RUSU, PhD	Geography

PREREQUISITES	Geography of Europe, Physic Geography, Human Geography

OBJECTIVES	1. Knowing the physical and human extra-European continents 2. Acquiring methods and techniques of regional analysis 3. Acquiring synthetic methods of territorial and spatial differentiation
COURSE CONTENTS	Current problems of the contemporary world. Demography, economy, climate change. Geography of Africa - physical features. Features of African geodemographics. Current problems of the African economy. Asia – territorial immensity, geographic and physical diversity. Progressive demography. Human pressure on the Asian space. Asian Economic Contrasts. Social and economic emergence of China. America. Territorial unity and diversity. Evolution of the American population. Force of migration. Differences of the American economy. U.S. economic slow motion. The emergence of Brazil. Oceania. Useful space and repulsive space in Australia. Civilization contrasting in Oceania. Specific Anglo – Saxon economy to south territory. Social development and computerization in the extra-European space.
PRACTICAL	Climate differentiation in Africa. Sahara and the Congo Depression. Socio-economic problems of Sahel. Regional problems of the African territory. The influence of the monsoon on the Asian economy. Demographic spontaneous and controlled behaviour in Asia. Economic dragons and tigers of Asia. Threats to the biodiversity of the Amazonian region. Spatial planning in the USA. Agricultural and industrial models. Ethnic diversity and the American democratic convergence. The Australian concentric space. Urban macrocephaly in Australia. Unique Australian flora and fauna. New Zealand - a model of economic development and nature conservation. Analysis and work evaluation.
TEACHING METHODS	Lectures, application (data interpretation)

RECOMMENDED READING	Rusu E. – *Geografia continentelor. Africa*, Editura Didactică şi Pedagogică, Bucureşti, 2007 Rusu E. – *Geografia continentelor. Asia*, Editura Didactică şi Pedagogică, Bucureşti, 2003 Rusu E. – *Geografia continentelor. Australia şi Oceania*, Editura Didactică şi Pedagogică, Bucureşti, 1998 Lageat Y. – Les milieux phisiques *continentaux* , Edition Belin, Paris, 2004 Demangeot J. – *Les milieux naturels du globe,* Edition Armand Colin, Paris, 1998 Leroux M. – *Global warming – mythe ou realite?*, Anales de geographie, nr. 624, 2002 Gourou P. – *L'Afrique*, Edition Hachette, Paris, 1970 Brunet R. – *Geographie Universelle*, Edition Belin – Reclus, Paris, 1995 XXX – *Le nouvel Observateur - ATLASECO* – colectia 2000 - 2008 XXX – Image economique du monde, Edition Armand Colin, colecția 2000 – 2008

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**GEOGRAPHY OF THE MAJOR WORLD POLITICAL AND ECONOMIC REGIONS**	CODE: JG3506

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	V	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OB

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1	1			56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	Economic geography. Spatial organization. Geodemography

OBJECTIVES	Deepening knowledge of the world political map; assimilation of the current issues of the planetary system and geo-strategic stakes in terms of relations established between the major political and economical assemblies (globalization and its spatial consequences)
COURSE CONTENTS	Definition of major global economic and political regions; Socio-cultural and political context of globalization; The economic context of globalization; The phenomena of regional integration; Actors of globalization. Metropolis; Major transnational companies; Fundamentals of the building of the European Union. Current continental economic disparities and the stakes of EU enlargement; Europe and North-Asia; North America; Latin America; Mexamerica; North Africa and Western Asia; South Asia, South-East and Pacific; Eastern Asia; The architecture of the global space
PRACTICAL	Political world map and the major regions: cartographic exercise; Characterization of the 7 (15) ESPON macro regions; the political consequences of colonization; The shock of civilizations: Samuel Huntington's thesis comment; Comment on "Major global cities" by J. Bonnet; The EU: the construction of political and economical space; North America in the post-Cold War world; China in the contemporary world; Current stakes of the world regions
TEACHING METHODS	Interactive lecture based on the use of media

RECOMMENDED READING	P. Boniface (dir.) – Atlas des relations internationales, 2003 ; Bonnet, J. – Marile metropole mondiale, Iaşi, 1997 ; Cordelier, S. (dir.) – L'Etat du monde, Paris, 1980-2005 ; Gamblin, A. / Carroue, L. (dir.) – Images économiques du monde, Paris, 1973-2005 ; Groza, O. ; Țurcănaşu, G. ; Rusu ; Al. – Geografie economică, Iaşi, 2005 ; Johnston, R.J. ; Taylor, P.J. ; Watts, M.J. – Geographies of the global change. Remapping the world in the late 20th century, Blackwell, Oxford, 1996; Mucchielli, J.-L. ; Mayer, Th. - Multinational Firms' Location and the New Economic Geography, Edward Elgar, Cheltenham, UK • Northampton, MA, USA, 2004; Muntele, I. ; Iațu , C. – Geografie economică, Bucureşti, 2002; Warwick E.M. - Geographies of Globalization, Routledge, London-New York, 2006; Atlas de la mondialisation, 2007 ; Atlas du Monde diplomatique, 2003, 2005, 2007 ; Atlas des religions, 2007 ; Atlas du terrorisme, 2008 ; ESPON project 3.4.1. Europe in the World (www.espon.eu); Manières de voir : La bataille des langues, 2008

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**HUMAN GEOGRAPHY OF ROMANIA**	CODE: JG3608

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources.

OBJECTIVES	Knowledge of the human activities and of their dynamics in the Danube-Carpathian-Black Sea space in the course of history. Emphasizing the complexity of the historical, cultural, economic and social of Romania, by diachronic analysis of the geographical phenomena. Spatial analysis of the demographical and economic phenomena with emphasis on the transitional period (1990-2005)
COURSE CONTENTS	W 1 Geographical and geostrategic position of Romania W 2-6 Dynamics of Romania population and geo-demographic indicators W 8-9 Urban and rural settlements W 10-15 Spatial-temporal and structural characterization of the economic activities (industry, agriculture, means of communication and transportation, internal and external commerce of Romania, tourism)
PRACTICAL	Better understanding of the knowledge taught at the lecture, by means of graphical and cartographical materials, devised by students on the basis of the demographical and economic statistic information (population censuses, statistic yearbooks, demographic yearbooks, etc)
TEACHING METHODS	Lectures using the video projector Problematisation and heuristic conversation

RECOMMENDED READING	Nimigeanu, Vasile (2001) – *România, populație, aşezări, economie*, Ed.Univ. „Al.I.Cuza", Iaşi. Nimigeanu, Vasile (1996) – *România-geografie umană*, Ed.Univ. „Al.I.Cuza", Iaşi Ianoş, I. (1987) – *Oraşele şi organizarea spațiului geografic*, Ed. Acad., Bucureşti Pop, P. Grigor (1997) – *Geografia hidroenergetică. Presa universitară clujeană*, Cluj-Napoca Rey V. & co. (2000) - *Atlas de la Roumanie,* Paris: CNRS, GDR Libergéo-La Documentation française Şandru, I. (1978) - *România-geografie economică*, Ed. Acad., Bucureşti Tufescu, V. (1974) - *România-natură, om, economie*, Ed. Acad., Bucureşti * * * - *Anuarele statistice ale României*: 1951-2001, Bucureşti. * * * - *Geografia României*, vol.I (1983); II (1984), III (1987), IV (1992), Ed. Acad., Bucureşti

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**REGIONAL GEOGRAPHY OF ROMANIA**	CODE: JG3609

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	6	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DAN LESENCIUC, PhD	Geography

PREREQUISITES	

OBJECTIVES	The course is an integrated application of the principles of geographic regionalisation of the Romanian territory. On the background of the major units , morphotectonics, we can identify spatial morphostructural units, with a growing share of landscape morphology in achieving the climato-vegetable and pedologic landscape, with a strong socio-economic charging, able to transform the local environment, giving it new features and new rates of evolution, different from the natural ones.
COURSE CONTENTS	Chapter I. Introduction in the geographical regionalisation of Romania. Principles and criteria of regionalisation. Geographical units of Romania. Chapter II. The orogen province. The Carpathian subprovince. 1. The Carpathians throughout the national territory. General characteristics of the natural environment and the specific humanization. 2. The Eastern Carpathians (The mountains of crystalline-Mesozoic axle). Flinch mountains. Volcanic mountains. Central digressional area. The Bucegi mountain group with characters of transition. 3. The Meridional Carpathians. The Fagaras, Parang, Retezat-Godeanu mountain groups. Depression and defiles of the Meridional Carpathians. 4. The Western Carpathians. Carpathians and depressions of Banat and Oltenia. The Danube Defile. Poiana Rusca Mountains, Apuseni Mountains. Subcarpathian subprovince. General geographical characters. Spatial units (The Moldovian Subcarpathians, The Subcarpathians of Vrancea, The Subcarpathians of Central-East Muntenia, The Arges Hills, The Subcarpathians of Oltenia). The plateau pericarpathian subprovince. General geographical characters. Spatial units (The Transylvanian Plateau, The West hills, The Getic Piedmont) The plain pericarpathian subprovince. General geographical characters. The Tisa Plain. Chapter III. The platform province. The Carpathian subprovince of plateau. . General geographical characters. Spatial units (Moldavian Plateau, The North Dobrudja Plateau, The Central-Southern Dobrudja Plateau) The plain pericarpathian subprovince. General geographical characters. Spatial units (The Wallachian Plain, The Danube Delta)
PRACTICAL	Practical works are pursuing the course topics and are in concordance with the methodology of regional geography. Week I: Oro-hydrographical sketch of a certain Carpathian mountainous area/Week II: Oro-hydrographical sketch of a certain Carpathian mountainous area/Week III: The map of the karst areas in Romania/Week IV: Geographical characterization of the Maramures Depression/Week V: Geographic profile on SN direction through the Rodna Mountains, the Maramures Depression and the Maramures Mountains/Week VI: : Geographical characterization of the Țara Bârsei - Trei Scaune Depression/Week VII: Geographic profile through the Bucegi Mountain Group/Week VIII: Mineral resources and exploitation centers in the Metaliferi Mountains/Week IX: Romanian Subcarpathians- identification of the major subregional units/Week X: The Transylvanian Plateau - regional subunits/Week XI: The West Hills- identification of major subregional units/Week XII: The Moldavian Plateau- regional subunits/Week XIII: The North-Dobrudja Orogen- morpholithological correlations/Week XIV: The Romanian Plain - regional subunits
TEACHING METHODS	Lecture and problematisation

RECOMMENDED READING	
	Ielenicz M, Ileana Pătru, Mioara Ghincea, Subcarpații României, Editura Universitară, Bucureşti 2003, Mihăilescu, V., *Carpații Sud-Estici,* Editura Ştiințifică, Bucureşti, 1963 Mutihac,V., *Unitățile structurale ale teritoriului României şi resursele minerale,* Editura Tehnică, Bucureşti, 1990 Nimigeanu, V., *Geografia umană a României,* Editura Universității „Al.I.Cuza", Iaşi, 1996 Pop Gr. (2000) – Geografia Carpaților şi subcarpaților României, Ed. Presa Clujeana Posea, Gr. şi colab., (1974) - *Relieful României,* Ed. Şt., Bucureşti Sârcu, I., *Geografia fizică a R.S.România,* Editura Didactiă şi Pedagogică, Bucureşti, 1971

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work and written evaluation
	Formula of the final mark	Evaluation of participation in activities during the semester and in the laboratory 50% Final examination answers 50%

Anexa I

COURSE TITLE	**URBAN GEOGRAPHY AND RURAL GEOGRAPHY**	CODE: JG3610

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MARINELA ISTRATE, PhD	Geography

PREREQUISITES	General Human Geography, Economic Geography, Population Geography

OBJECTIVES	Emphasizing the role of the network of settlements in constituting the humanized landscape Fundamental characteristics of the rural-urban continuum
COURSE CONTENTS	Formation of the networks of rural settlements. Creation and development of the rural space. The site of rural settlements and its particularities. Morphology of rural settlements. Classification of the rural settlements. Urbanization of the Globe – spatially and chronologically. The relation between urban settlements and natural conditions. The role of the position and the site in the development of cities. The urban functions. The functional structure of the world cities. The particularities of the main urban functions. Urban physiognomy. The urban plan and profile. The density of the urban tissue and of the population inside cities. The relation between cities and the surrounding rural area (demographic relations, economic relations, cultural relations). Influential areas and the urban hierarchy
PRACTICAL	Analysis of the methods of investigation of the rural settlements. The discovery of the significance of the density of settlements by using topographic maps. Position of cities. Examples. Case studies. Functionality and morphology of cities. Relations with the urban hinterland and interurban relations. Theory of central places. Theory of the polarized development and of the increase poles. Determination of influential urban areas. Theory of the urban attraction. The gravitational model. Theory of the urban economic base. The use of the isochronous method in studying influential urban areas.
TEACHING METHODS	Speech, debate, modelling – issues. Speech held with the help of the overhead projector. Debate

RECOMMENDED READING	A. S. Bailly (1975) – L'organisation urbaine – théorie et modèles, C. R. U., Paris J. Beaujeu-Garnier, G. Chabot (1963) – Traité de géographie urbaine, A. Colin, Paris V. Cucu (1981) – Geografia populaţiei şi aşezărilor omeneşti, ed. a II-a, Ed. Did. Ped., Bucureşti J. Gottmann (1961) – Megalopolis – the urbanized northeastern seaboard of United States, New York Ianoş, I., Humeau, J.B. (2000) - Teoria sistemelor de aşezări umane, Ed. Tehnică, Bucureşti. Laborde, P. (2005) - Les espaces urbaines dans les monde, Armand Colin, Paris. Paulet, J.P. (2000) - Geographie urbaine, Armand Colin, Paris Roncayolo, M. (1990) - La ville et ses territoires, Gallimard, Paris. Wackermann, G. (2004) - Geographie urbaine, Ed. Ellipses, Paris

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	**HISTORICAL AND POLITICAL GEOGRAPHY**	CODE: JG3611

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor IONEL BOAMFA, PhD	Geography

PREREQUISITES	

OBJECTIVES	Familiarising students with complex problems which are raised by the attempt at explaining historical geographical phenomena. Transmission of the basic problems related to the development of relations between human society and its area. Highlighting the main links between environment and society in the Romanian space. Familiarising students with complex problems that the attempt at explaining political and geographical phenomena raises. Transmission of the basic problems related to the development of relations between human society and its life. Highlighting the main politico-geographical features of the state, territories with a political abnormal status, border areas and core-capital. Highlighting the geopolitical importance of the Planetary Ocean. Presentation of the main organisations worldwide and the most important political supranational organisations. Removing the spotlight on the evolution of democracy in the world. Highlighting elements of electoral geography.
COURSE CONTENTS	Historical Geography: Introduction. Evolution of historical geography. The study of historical geography. I. DEFINITION, PURPOSE OF STUDY, PRINCIPLES AND METHODS OF RESEARCH. RELATIONS WITH OTHER SCIENCES. II. NATURAL EVOLUTION AND GEOGRAPHICAL HUMANIZED AREAS. III. INFLUENCE OF NATURAL CONDITIONS AND THE IMPACT ON HUMAN SOCIETY. IV. INFLUENCE OF HUMAN AMENDMENTS OVER THE EVOLUTION OF ENVIRONMENTAL AND SPATIAL DISTRIBUTION OF HUMAN SOCIETY. V. MAN'S RELATIONSHIP WITH THE ENVIRONMENT IN THE ROMANIAN AREA AND HIS GEOGRAPHICL IMPACT Political Geography: I Focus of political geography II Geopolitics III Geostrategy IV Personal space and territoriality V Perception of the political world VI Political geography of states and political borders VII Internal administrative organisation. Unitary states, regional states, federal states. VIII Political Geography of the Ocean. IX International organisations X Evolution of democracy in the world. XI Notions of electoral geography.
PRACTICAL	Historical Geography: 1. Themes of the seminar: Mediterranean and Pontic colonisation of the ancient Greeks and Phoenicians. Roman Empire - the first "major world power." The great migration - "millennium glum"? Differential impact of European Colonisation on the space and population of America. The partition of Africa between European powers. Religious interferences and cultural syncretism in multiethnic areas: "The Romanian Model." Diffusion of the cultural Euro-American "model" and globalisation 2. Themes for practical works (alternative or in addition to workshops): Collection and geographical-historical analysis of Romanian anthroponomy Romanian. Collection and geographical-historical analysis of the toponymy on Romanian topographic maps. Political Geography: 1. Political-geographical analysis of the territories inhabited by Romanians. 2. Political-geographical analysis of Central-Eastern Europe, and some areas with outbreaks of conflict: the Middle and Near East, Sudan and the Horn of Africa, Central and Southern Asia and the Korea Peninsula. 4. Analysis of electoral behaviour in the Danubian Principalities (1831-1862) / Romania (1862-2007) and ECSC / EEC / EU (1952-2007).
TEACHING METHODS	Lectures with video proiector Heuristic conversation and problematisation

RECOMMENDED READING	L. Boia (1981) - *Probleme de geografie istorică*, Centr. Mult. Univ. Bucureşti; I. Conea (1993) – *Vrancea. Geografie istorică, toponimie şi terminologie geografică*, Edit. Academiei, Bucureşti; N. Drăganu (1933) – *Românii în veacurile IX-XIV pe baza toponimiei şi a onomasticii*, Monitorul Oficial, Bucureşti; I. Iordan (1963) – *Toponimia românească*, Editura Academiei, Bucureşti. Al. Ungureanu, I. Boamfă (2006) – *Toponomastică*, Editura Sedcom Libris, Iaşi. V. Bodocan (1999) – *Geografie politică*, Ed. Presa Universitară Clujeană, Cluj-Napoca; G. Corna Pellegrini, Y. Lacoste (1982) – *La géographie, ça sert d'abord à faire la guerre*, Maspéro, Paris; Ch. Vandermotten (1997) – *Géographie politique,* Presses Universitaires de Bruxelles, Bruxelles;

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Active participation in laboratory activities. Making logical correlations between the knowledge acquired during the semester, consistent assertion, use of appropriate terminology, proper valuation of cartographic materials.
	Way of evaluation	Continuous evaluation during practical work + Final project
	Formula of the final mark	Evaluation of participation in laboratory activities 50% Answers at the final examination 50%

Anexa I

COURSE TITLE	**QUATERNARY PALEOGEOGRAPHY**	CODE: JG3612

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	V	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MIHAI CIPRIAN MARGARINT, PhD	Geography

PREREQUISITES	General Geology, General Physical Geography, General Human Geography, Meteorology and Climatology, Bioclimatology

OBJECTIVES	Quaternary paleogeography aims to thoroughly approach the knowledge of the last stage of evolution and individualization of the geosystem, at the level of both the physico-geographical and anthropic elements. Mainly, there will be treated the defining elements of this period, respectively climatic fluctuations and the individualization of the human society. Also, the consequences of these two events of terrestrial history are treated in an integrative manner, mainly as phenomenology.
COURSE CONTENTS	Introduction. Terminology. General features of the Quaternary. Geochronology problems. General methodological problems. Modern methods of investigation and dating. Methods of oxygen isotopes, radiocarbon, tephrocronology, varves, dendrochronology etc. Quaternary limits and subdivisions. Applications to the Romanian territory. The Villafranchian. Quaternary climatic fluctuations. Causes of glaciations. The classical Alpine model. Manifestations on the European territory (Alps, Carpathians). Glaciations in Asia, North America, South America, Africa and Australia. The Antarctic glaciation. Quaternary changes in the hydrosphere. Fluctuations of the Planetary Ocean level. Evolution of the hydrographic network. Tectonic movements in the Quaternary. Lithologic characters of quaternary deposits (marine and continental). Loess and loess-like deposits. Genesis, geographic repartition, characteristics, regional differentiations. Paleosols. Quaternary evolution of vegetation. Composition, latitudinal and altitudinal dynamics, geographic repartition. Quaternary evolution of fauna. Proboscidea in Europe, America and Asia. Large mammals from Romania. Origin and evolution of humans. First primates. Australopithecus. The birth of humans. Archeo-antrops. Paleoantrops. Neoantrops. Their spatial dynamics. Reconstructing human behaviour in relation to the environment. Material culture in the Quaternary. Arheolithic. Palaeolithic. Neolithic. General view on the evolution of human society. Art, religion, language.
PRACTICAL	Geochronologic scale. Geomagnetic scale. Sporopolinic method. Methodology. Knowing the main spores and pollens. Drawing a sporo-pollen diagram. Dendro-chronologic method. Principles and applications. Dynamics and repartition of glacial ice caps in Europe and North America. Quaternary geology in Bavaria's Tableland. Correlating glacial deposits with fluvial terraces. Drava and Rhone valleys. Level fluctuations of the Black Sea. Remarkable sites: Rusinga Island, Paşalar, Olduvai Gorges, Gibraltar, Gran Dolina, Atapuerca. Neanderthalians. Anthropologic features, territorial dynamics – film. Homo sapiens. Anthropologic features, territorial dynamics.
TEACHING METHODS	Lectures, debates, modelling, problem solving

RECOMMENDED READING	
	Bowen, D. Q. (1978) – *Quaternary Geology*, Pergamon Press. Cârciumaru, M (1996) – *Paleoetnobotanica*, Edit Glasul Bucovinei, Helios, Iaşi. Chaline, J. (1972) – *Le Quaternaire*, Edit. Doin, Paris. Chaline, J. (2000) – Un million de generations, Edit. Seuil, Paris. Cojocaru, I. (2005) – Paleobiologie, Vol. IV., Edit Univ. „Al. I. Cuza", Iaşi. Donisă, I. (1993) – *Paleogeografia Cuaternarului*, Edit. Univ. „Al. I. Cuza", Iaşi. Evin J. şi colab. (2005) – La datation en laboratiore, Edit. Errance, Paris. Ianoş, Gh. (2005) – Paleogeografia Cuaternarului, Edit. Univ. de Vest, Timişoara. Liteanu, E., Ghenea, C. (1966) – *Cuaternarul din România*, St. Tehn. şi Econ., seria H, tom I, Bucureşti.

ASSESSMENT METHODS		
	Conditions	Attendance of practical classes
	Criteria	Active participation to practical activities
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final project

Anexa I

COURSE TITLE	**GEOGRAPHICAL TOPONOMASTICS**	CODE: JG3612

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor IONEL BOAMFA, PhD	Geography

PREREQUISITES	

OBJECTIVES	Familiarizing students with the geographic problems posed by the understanding of the meaning of toponyms. Transmission of knowledge of the basic principles and methodology of research. Stressing the importance of the knowledge of toponymy in shaping the geographical culture of pupils and students.
COURSE CONTENTS	Field of study of toponomastics. Brief history of toponomastics - main toponomastic schools. Toponymy in the present. Main life features. Spontaneous, official and scientific toponymy. The stability problem of toponymy. Deliberate distortion of toponymy. The transcription problem of toponymy. Scientific signification of toponymy. Training of toponomists. Stages. Principles. Arrangements for the training of toponomists. Evolution of toponymy. Role of desemantisation in the evolution of toponymy. Classification of toponyms.
PRACTICAL	Research principles of toponomastics. Research methods of toponomastics. Extracting the names of collections of historical documents. Extracting names from dictionaries of toponymy. Extraction and grouping of categories of toponymic names on the Wallachia Map (Fligely). Complex analysis of toponymies of Romanian topographic sheets of the pre-, inter- and / or post-war periods. Linking toponyms with anthroponyms. Devising and interpreting anthroponomical maps.
TEACHING METHODS	Exposition, conversation, heuristic conversation, description. Lecture, discussion, modelling - problematisation.

RECOMMENDED READING	I. Boamfă (2007) – *Ţara Oltului – studiu de geografie istorică cu privire specială asupra relaţiilor cu toponimia*, Editura Fundaţiei Axis, Iaşi; Al. V. Boldur (1937) – *Istoria Basarabiei*, Tipografia "Dreptatea" (Pasaj), Chişinău (reeditare 1992); I. Conea (1993) – *Vrancea. Geografie istorică, toponimie şi terminologie geografică*, Edit. Academiei, Bucureşti; Gh. Dragu (1973) – *Toponimie geografică (partea I)*, Centrul de multiplicare al Universităţii, Bucureşti; N. Drăganu (1933) – *Românii în veacurile IX-XIV pe baza toponimiei şi a onomasticii*, Monitorul Oficial, Bucureşti; Bénedicte Fénie, Jean-Jacques Fénie (1997) – *Toponymie occitane*, Edition Sud Ouest, Saint-Germain-du-Puy; V. Ioniţă (1982) – *Nume de locuri din Banat*, Editura Facla, Timişoara; I. Iordan (1963) – *Toponimia românească*, Editura Academiei, Bucureşti. I. I. Russu (1981) – *Etnogeneza românilor*, Editura Ştiinţifică şi Enciclopedică, Bucureşti; I. I. Russu (1990) – *Românii şi secuii*, Edit. Ştiinţifică, Bucureşti; Al. Ungureanu, I. Boamfă (2006) – *Toponomastică*, Editura Sedcom Libris, Iaşi.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Active participation in the laboratory activities. Making logical correlations between the knowledge acquired during the semester, consistent expression, use of appropriate terminology, proper valuation of cartographic materials
	Way of evaluation	Oral and written assessment
	Formula of the final mark	Evaluation of participation in the laboratory activities 50% Answers at the final examination 50%

Anexa I

COURSE TITLE	**GEOGRAPHY OF PLANETARY OCEAN RESOURCES**	CODE: JG2313

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2	1			42	108	-	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LILIAN NIACŞU	Geography

PREREQUISITES	Hydrology and Oceanography

OBJECTIVES	The course of *Geography of Planetary Ocean Resources* aims at the acquisition of knowledge regarding the resources existent in seas and oceans, as well as of the problems regarding their extraction and capitalization.
COURSE CONTENTS	A. The concept of natural resources B. Water volume in nature C. Resources of the Planetary Ocean 1. Water as fundamental mineral resource 2. The resources of the Planetary Ocean 1. Salt 2. Marine minerals 3. Tidal energy and its usage 4. Other sources of energy 5. Coastal fishing 6. Blue revolution D. Pollution of the Planetary Ocean E. The Planetary Ocean nowadays
PRACTICAL	At the practical applications, there will be presented a series of thematic documentaries regarding the biological resources and the degree of pollution of the waters of the Planetary Ocean. On the basis of these presentations there will be conducted discussions with the students. Apart from this, the latter will have to prepare a paper project regarding the way in which one of the Planetary Ocean resources is capitalized on.
TEACHING METHODS	Lecture, discussions, video presentations

RECOMMENDED READING	Garisson Tom (2006), Essentials of Oceanography, Edit. Cole&Books, New York, U.S.A. Romanescu Gh. (1997), *Oceanografie*, Edit. Universităţii "Ştefan cel Mare", Suceava. Romanescu Gh. (2000), *Resursele Oceanului Planetar*, Edit. Universităţii "Ştefan cel Mare", Suceava Varduca A. (1997), *Hidrochimie şi poluarea chimică a apelor*, Edit. *H*G*A*, Bucureşti. *** - *The state of world fisheries and Aquaculture*, F.A.O.

ASSESSMENT METHODS	Conditions	Seminar attendance and the obtaining of minimum 2,5 points out of the total of 4 possible
	Criteria	Assimilation of fundamental knowledge
	Way of evaluation	Paper project for seminar and course written exam + 1point granted
	Formula of the final mark	Written exam. If one obtains minimum 2,5 points from 5 possible, these will be added to the points obtained in the seminar.

Anexa I

COURSE TITLE	**EARTH VOLCANISM AND SEISMICITY**	CODE: JG3513

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		1		42	108	5	P	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DELIA ANNE-MARIE ANDRONE, PhD	Geography

PREREQUISITES	General Geology; General (physical and human) Geography

OBJECTIVES	- thorough acquisition of basic concepts regarding Earth volcanism and seismicity - acquisition of further information in the specific domains - development of synthesis abilities regarding the detailed concepts - development of problematisation capacities within the specific domains
COURSE CONTENTS	***VOLCANISM*** – 1. Historic al review; origin of magmas – the Earth mantle; magmatic processes. 2. Volcanic eruption products: a. lavas – basic, intermediate and acidic – their dynamics and structural features; b. pyroclastics; c. volcanic gas; impact of volcanic eruptions upon the environment and human health. 3. Associated phenomena: a. pyroclastic flows; b. hydrothermal systems; c. lahars; d. landslides; e. earthquakes; f. tsunamis; g. acid rains. 4. Volcanic structures; volcanic eruption: magnitude and intensity – VEI index. 5. Eruption types: a. effusive volcanism (Hawaiian, Strombolian); b. explosive volcanism (subplinian, plinian, ultra-plinian); c. phreatomagmatic volcanism (vulcanian, surtseyan, phreatoplinian). 6. Global volcanism – a. distension areas: mid-ocean rifts (submarine volcanism and mid-ocean ridge volcanism - Iceland, Surtsey, Jan Mayen); continental rifts (East-African Rift); b. compression areas: subduction volcanism – "Pacific Ring of Fire", Lesser Antilles, Tethysian compressive alignment (Italy, Greece, Turkey, Armenia, Iran *etc.*); c. *hot spot* volcanism areas: Hawaii, Tuamotu, Galapagos, Réunion, Azores, Canary, Ascensión *etc.*; 7. Volcanic hazards and risks; 8. Volcanic monitoring. ***SEISMICITY*** – 1. Historical review; seismic waves: body waves (P and S waves) and surface waves (Love and Rayleigh waves); Earth interior exploration by means of seismic waves. 2. Seismic magnitude, energy and frequency; evaluation of seismic parameters. 3. Causes of seismicity; effects of earthquakes: directly and indirectly. 4. Global seismicity; Romanian earthquakes. 5. Seismic hazards and risks; earthquake prediction; seismic prevention and mitigation. 6. Palaeoseismology; neotectonics.
PRACTICAL	1. Compression volcanism (subduction areas) – "Pacific Ring of Fire": *St Helens, Krakatau, Pinatubo* – documentary – debate. 2. Compression volcanism – Lesser Antilles: *Montserrat* – documentary – debate. 3. Tethysian compression areas – Italy - Greece: *Pompei, Santorini* – documentary – debate. 4. *Hot spot* volcanism: *Hawaii* – documentary – debate. 5. Cataclysmic earthquakes: *Loma Prieta* – California, U.S.A. (1989); *Kobe* – Japan (1995) – documentary – debate. 6. Cataclysmic earthquakes: *Izmit* – Turkey (1999) – documentary – debate. 7. Cataclysmic earthquakes: *Sumatra/Andaman* - Indonesia (2004) – documentary – debate.
TEACHING METHODS	- lecture + PowerPoint presentation; heuristic conversation, debate; documentaries + debate, problematisation.

RECOMMENDED READING	- ALLABY A., ALLABY M. (2003) – *Dictionary of Earth Sciences.* Oxford University Press, U.K. - KEAREY PH. (1996) – *Dictionary of Geology*. Penguin Books Ltd., London, U.K. - LUHR J.F. (2003) – *Earth.* First American Edition. Dorling Kindersley Inc., New York, U.S.A. - PHILIP H., BOUSQUET J.-C., MASSON FR. (2007) – *Séismes et risques sismiques.* Dunod, Paris. - POTTER M. (2000) – *Volcanoes.* Dorling Kindersley Ltd., London, U.K. - SIGURDSSON H. (2000) – *Encyclopedia of Volcanoes.* Academic Press – An Imprint of Elsevier, San Diego – California, U.S.A. - STEIN S., WYSESSION M. (2007) – *An Introduction to Seismology, Earthquakes and Earth Structure.* Blackwell Publishing, U.K. - TARBUCK E.J., LUTGENS F.K., PINZKE K.G. (2000) – *Applications and Investigations in Earth Science.* Third edition, Prentice Hall, Upper Saddle River – New Jersey, U.S.A. * * * The New Encyclopædia Britannica (1994) – vol. 29, art. *Volcanism.*

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

THE FIELD OF GEOGRAPHY

Speciality TOURISM GEOGRAPHY

Anexa I

COURSE TITLE	INTRODUCTION TO THE GEOGRAPHY OF TOURISM AND SERVICES	CODE: JT1104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant STOLERIU OANA MIHAELA	Geography

PREREQUISITES	

OBJECTIVES	Acquiring the taxonomy and spatial features of the tertiary sector; understanding the role of tertiary activities in spatial organisation and planning; highlighting the key features of global tourism activities from a geographical perspective: distribution of tourism potential, factors, forms of tourism, flows, tourism regions, environmental impact of tourism; the use of specialised bibliography and field observations with the aim of a thorough acquisition of fundamental field concepts.
COURSE CONTENTS	Service activities and the geography of services. Introduction: definition, importance. The limits between goods and services. Importance of services and development of the tertiary sector. Specific concepts: globalisation, post-industrial society. The service market. The role of services in organising the territory. Decentralisation, urban sprawl. Public / private services: delineation, classification, key features. Tourism services - concepts, importance. Origins of tourism and its historical evolution. The tourism potential - concepts, definition, spatial distribution. Technical and material support of tourism activities. The tourism product. The tourism market. Types of tourism. Tourism flows - classification, main features, spatial distribution. The tourism space - concepts, typology. Socio-spatial dimensions of tourism. Analytical methods.
PRACTICAL	Taxonomy of services. Statistical records. Analysis of statistical data bases: development of the tertiary sector. Principles and models regarding the location of services. Analysis of cartographic materials, case studies. Tourism services – statistical taxonomies. Economic and spatial importance. Identification of potential tourism elements - case studies. Tourism infrastructure: typology, case studies. Types of tourism and specific tourism resources: case studies. The analysis of tourism flows – tourism indicators. Statistical data analysis. Analysis of tourism areas. Tourism indicators.
TEACHING METHODS	Lectures supported by video-projector; problematisation and heuristic conversation

RECOMMENDED READING	Muntele, I., *Geografia turismului*, Univ. Al.I.Cuza, Iasi, 2000 Muntele I., Iatu C., *Geografia turismului*, Sedcom Libris, Iasi, 2003 Sacareau, I., *Géographie du tourisme*, Nathan, Paris, 2000 Cazes, G., *L'espace touristique*, A.Collin, 1996 Lozato-Giotart, J.P., Géographie du tourisme, Masson, Paris, 1992 Merenne-Schoumaker, Bernadette – *Geographie des services et des commerces*, Paris, 2004 Muntele, I., Iaţu, C. – *Geografie economică*, Bucureşti, 2002 Groza, O., Ţurcănaşu, G., Rusu, Al. – *Geografie economică*, Iaşi, 2005 Bavoux JJ, Beaucire Fr.,Chapelon L., Zembro P. – *Geographie des transports*, A. Colin, Paris, 2005 Martin P. – *Les services dans le monde*, Ellipses, Paris, 2006.

ASSESSMENT METHODS	Conditions	Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesizing and applying the acquired knowledge in a wider geographical context
	Way of evaluation	Continuous evaluation during practical work Project using the key theoretical concepts. Final exam.
	Formula of the final mark	50% evaluation during practical work, 50% final exam

Anexa I

COURSE TITLE	INFORMATION TECHNOLOGY APPLIED TO TOURISM	CODE: JT1106

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LUDOVIC-STEFAN KOCSIS	Geography

PREREQUISITES	-

OBJECTIVES	Understanding and acquiring the opportunities and ways of utilisation of the computing systems and of the Information and Communication Technology in the geographic activity. Firstly, some concepts about the architecture of computing systems and about the data processing manners are approached, as well as the means of data input and output to and from the computing system. Subsequently, the process of utilisation of various software products useful to the didactic and scientific activity in general, with a specific emphasis on the geographic one, is studied.
COURSE CONTENTS	1. Architecture Of Computing Systems. 2. Concepts Of Data Processing. 3. Communications. Networks, The Internet. 4. Operating Systems. Software Products. 5. Utilisation Of The Windows Operating System. 6. Utilisation Of The Internet. 7. Utilisation Of Text Processing Software. 8. Utilisation Of Database Management Systems. 9 Utilization Of Spreadsheet Software. 10. Statistical Data Processing Using Spreadsheet Software. 11. Graphic Plots Obtained Using Spreadsheet Software. 12. Utilisation Of Assisted-Presentation Software. 13. Graphic Data. The Raster System, The Vector System. 14 Utilisation Of Raster Graphics Software. 15. Utilisation Of Vector Graphics Software. 16. Utilisation Of Web2.0 Tools For Geospatial Information
PRACTICAL	Using computers in the Geoinformatics and Remote Sensing Laboratory, students will become acquainted with the components of a Computing System, with the manner of utilisation of the MS Windows operating system, main services offered by the Internet and their usage, subsequently getting to know some software products specialized in the carrying out certain operations, such as the Microsoft Office package (Word, Excel, PowerPoint) for the creation of documents, management of databases, spreadsheet computing, statistics and graphic plots, as well as Adobe PhotoShop for the creating and editing of graphical data stored in raster system and CorelDraw for creating and editing graphical data stored in vector system.
TEACHING METHODS	Lecture, problematisation; practical course, exemplification

RECOMMENDED READING	1. Adobe Team (2002) – Adobe Photoshop 6, Editura Teora, Bucureşti 2. Bains S. (2002) – CorelDraw 10, Editura Teora, Bucureşti 3. Leonard W. (2002) – Microsoft Office XP, Editura Teora, Bucureşti 4. PC Webopaedia Definitions and Links: www.pcwebopaedia.com 5. Pilat F.V., Popa S., Deaconu S, Radu F (1995) – Introducere în Internet, Ed. Teora, Bucureşti 6. Tanenbaum, Andrew S. (1997) – Retele de calculatoare, Ed. Computer Press Agora, 1997. 7. Windows Microsoft Pages: http://www.microsoft.com/windows/windows-xp/default.aspx 8. http://google-latlong.blogspot.com/ 9. http://www.google.com/mapmaker 10. http://sketchup.google.com/

ASSESSMENT METHODS	Conditions	Attendance to course and practical work
	Criteria	Thorough acquisition of fundamental concepts taught during the course and techniques learned during practical work. Capability of using these techniques to solve real-world problems.
	Way of evaluation	Continuous evaluation during practical work, final examination
	Formula of the final mark	A*0,1+WG*0,1+EG*0,2+PPG*0,1+PSG*0,2+CDG*0,2+W2GG=FG, where: FG = final grade A = evaluation of attendance WG = evaluation grade for Microsoft Word EG = evaluation grade for Microsoft Excel PPG = evaluation grade for Microsoft PowerPoint PSG = evaluation grade for PhotoShop CDG = evaluation grade for de CorelDraw W2GG = evaluation grade for web2.0 tools for geospatial content

Anexa I

COURSE TITLE	CARTOGRAPHY AND GEOMATICS IN TOURISM	CODE: JG 1208

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Adrian GROZAVU, PhD Assistant Professor Aurelian ROMAN, PhD	Geography

PREREQUISITES	

OBJECTIVES	Transferring to the students theoretical knowledge about the most important aspects of Cartography (field of study, historical evolution, cartographical products, methods of cartographical representation etc.) and about the basic problems of Geographical Information Systems (G.I.S.): definition, role of G.I.S. in geosystem analysis, drawing up and management of a G.I.S. The aim of the mastering of the theoretical concepts by the students is the acquiring of the skills necessary in the didactic activity and for scientific research application. Forming the ability of creating data bases and performing geostatistical analysis. Forming the abilities necessary for the devising of map background and for digital mapping.
COURSE CONTENTS	1. Cartography (general presentation, development). 2. Cartographical products. 3. The map as basic cartographic product (characteristics, components, classification). 4. Methods of cartographical representation. 5. Data representation and hoarding. 6. G.I.S. – concepts, categories and particularities. 7. Conception, drawing up and management of a G.I.S. 8. Data conversion and processing. 9. Elaboration of thematic layers. Complex cartographical compositions. 10. Data displaying, printing and distribution. Infrastructures and spatial data.
PRACTICAL	Exercises of map utilisation (reading and right interpretation, calculation and measurements etc.); Elaboration of graphical and cartographical materials; Spatial data importing and georeferencing; Data representation and hoarding into a G.I.S.; Vector editing. Data integration techniques.
TEACHING METHODS	Lecture; demonstration using audio-visual means (video-projector) and substitutes (maps, graphics etc.); exercises

RECOMMENDED READING	1. Béguin, Michèle, Pumain, Denise, 2005, *La représentation des données géographiques. Statistique et cartographie,* Edit. Armand Colin, Paris; 2. Dumolard, P., Dubus, Nathalie, Charleux, Laure, 2003, *Les statistiques en géographie*, Edit. Belin, Paris; 3. Iosep, I., Grozavu, A., 2003, *Cartografie. Îndrumar de activități asistate pentru învățământ la distanță*, Edit. Universității "Ştefan cel Mare" Suceava; 4. Longley, P. A., 2005, *GIS and Science*, Edit. John Wiley and Sons, London. 5. Maguire, D. J., Goodchild, M. F., Rhind, D., 1991, *Geographical Information Systems: Principles and Applications*, Longman Scientific and Technical. 6. Rouleau, B., 1991, *Méthodes de la cartographie,* Presses du CNRS; 7. Săndulache, Al., Sficlea, V., 1970, *Cartografie - topografie,* Edit. Didactică şi Pedagogică, Bucureşti; 8. Zanin, Christine, Trémélo, Marie-Laure, 2002, *Savoir faire une carte*, Edit. Belin, Paris;

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	GEOGRAPHY OF NATURAL AREAS OF THE EARTH	CODE: JT2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DANIELA LARION, PhD	Geology

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Understanding the general and regional characteristics of the environment in the cold, temperate and intertropical areas, understanding the zonality, the complex interactions among them and the way in which they have influenced the development of human activities; knowledge of the regional differences in the demographical and economic aspects.
COURSE CONTENTS	Location of cold, temperate and intertropical areas. Environment in the cold areas The Arctic (Arctic Ocean –climate, hydrological aspects, ocean floor landforms, biodiversity, resources, environmental problems in the land areas of the Arctic) Antarctica (Southern Ocean; Antarctica (landforms, climate, subglacial lakes, vegetation, fauna, human activities, environmental problems) Climatic and biogeographic characteristics of the temperate areas European temperate zone American temperate zone Asian temperate zone Environment in the intertropical areas Tropical rainforest Savannah Desert Resources in the intertropical areas and their capitalization; Human activities and environmental problems.
PRACTICAL	Interpretation of special geographical maps (landforms, climate, hydrography, vegetation, population density, urbanism) Geographical video documentaries and slides on different topics – representative for each geographical region of Europe. Projects on different environmental problems in the intertropical area (deforestation, overpopulation and its effects, natural hazards)
TEACHING METHODS	Lecture, problematisation, demonstration, interactive methods (PowerPoint presentations)

RECOMMENDED READING	
	1. Daniela Larion (2004) – *Geografia Americilor* (curs IDD) Universitatea Al.I.Cuza, Iaşi 2. Daniela Larion (2009) – *Geografia continentelor – Europa* , editia a IIa Editura Azimuth, Iaşi 3. Pompei Cocean (2005) – *Geografia Europei*, Presa Universitară Clujeană, Cluj 4. Pompei Cocean (1991) – *America,* Presa Universitară Clujeană, Cluj 5. I.Hârjoaba et.al.(1982) - *Geografia continentelor - Europa*, E.D.P. Bucuresti. 6. Eugen Rusu (2003) - *Geografia continentelor – Asia*, Editura didactică şi pedagogică 7. Silviu Negut et.al. - *Statele lumii*, Bucuresti, 1995, 1998. 8. Silviu Negut et.al. (2003)– *Enciclopedia Americilor*, Editura Meronia, Bucuresti.

ASSESSMENT METHODS		
	Conditions	Compulsory attendance to practical work and written tests
	Criteria	Thorough acquisition of certain fundamental field concepts and abilities to locate different geographical elements on the map
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	RURAL GEOGRAPHY AND AGRITOURISM	CODE: JT3505

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant STOLERIU OANA MIHAELA	Geology

PREREQUISITES	Economic Geography; General Human Geography; Tourism Geography

OBJECTIVES	- knowledge of the typology of rural settlements and their organisation forms - proper acquisition of agritourism and rural tourism concepts - analysis of tourism resources in rural areas and of specific tourism development strategies
COURSE CONTENTS	Rural geography: basic concepts. Morphological and functional features of rural settlements. Organisation forms of rural areas. Typology of rural areas. Tourism and agritourism: definitions, concepts and features. Touristic potential of rural areas. Diversification of agri-tourism resources. Ecological agritourism. Oenogastronomy and agritourism. The rural tourism product. The technical and material support of rural tourism. Forms of touristic accommodation in rural areas. Development and promotion of rural tourism product. Marketing strategies. Socio-spatial impact of agritourism. Rural tourism and local / regional development. European policies regarding rural tourism. Rural tourism in Romania: main features, political-administrative framework, touristic potential and touristic offer. The Romanian (agri)-tourism product within the national/global market.
PRACTICAL	Main features of rural areas. Types of rural settlements. Agricultural landscapes around the world: typology, analysis, case studies. Analysis of tourism and agritourism resources in rural areas: methodology, classification. The conception and promotion of rural tourism products: case studies. Location of tourist services in rural areas. Rural tourism in the European Union: case studies. Agritourism in Romania - analysis of legal framework. Agritourism in Romania: local / regional tourism strategies: case study. Agritourism in Romania: marketing, socio-spatial impact, case study.
TEACHING METHODS	- lectures supported by video projector; - problematisation and heuristic conversation

RECOMMENDED READING	Chapus R., Mille, P. – *Systemes et espaces agricoles dans le monde*, edit. A. Colin, Paris, 2001. Surd, V., (2004) – *Geografia aşezărilor*, Cluj-Napoca, Presa Universitară Clujeană. Țurcănaşu, G. (2006) – *Evoluția şi starea actuală a sistemului de aşezări din Moldova*, Iaşi, Casa Editorială *Demiurg*. Muntele I., Iațu C., - *Geografia Turismului. Concepte, metode şi forme de manifestare spațio-temporală*, Sedcomlibris, Iaşi, 2006. Petrea, Rodica – *Rural tourism and Sustainable Development,* Edit. Universității din Oradea, 2006. Tacu, Al. P., Glăvan, V. (coord.) (1999), *Turismul rural românesc. Actualitate şi perspectivă,* Edit. Pan Europe, Iaşi. Bran, Florina,Marin D.,Şinon, Tamara – *Turismul rural. Modelul european*, Edit. Economica, Bucureşti, 1997. Groza, O. (2005) – *Bazele teoretice ale planificării teritoriale*, Iaşi Patin V. – *Tourisme et patrimoine*, La Documentation Francaise, Paris, 2005. Giaoutzi,Maria,Nijkamp,P. – *Tourism and regional development. New pathways*, Ashgate publishing Ltd., 2006. Groza, O., Muntele, I., (2005). – *Geografie umană generală – note de curs*, Universitatea « Al.I.Cuza » Iaşi

ASSESSMENT METHODS	Conditions	Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts. Capacity of synthesising the acquired knowledge in a wider geographical context.
	Way of evaluation	Continuous evaluation during practical work. Final exam.
	Formula of the final mark	50% evaluation during practical work, 50% final exam.

Anexa I

COURSE TITLE	URBAN GEOGRAPHY AND URBAN POTENTIAL FOR TOURISM	CODE: JT2414

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant ALEXANDRU RUSU	Geography

PREREQUISITES	General (physical and human) geography

OBJECTIVES	An introduction in urban touristic potential and analysis models
COURSE CONTENTS	Introduction Spatial patterns in urban territory Spatial patterns in urban territory Touristic activities and the organisation of urban space Urban tourism Spatial analysis of tourism spatial forms Database for urban tourism Tourism for business activities Cultural urban tourism Tourism for leisure Geographical hierarchies in tourism activities Sustainable tourism Tourism in the LPS context (local productive system) Conclusions
PRACTICAL	Week I: Introduction Week II: Spatial patterns in urban territory – case study Week III: Spatial patterns in urban territory – case study Week IV: Touristic activities and the organisation of urban space– case study Week V: Urban tourism– case study Week VI: Spatial analysis of tourism spatial forms– case study Week VII: Database for urban tourism– case study Week VIII: Tourism for business activities– case study Week IX: Cultural urban tourism– case study Week X: Tourism for leisure– case study Week XI: Geographical hierarchies in tourism activities– case study Week XII: Sustainable tourism– case study Week XIII: Tourism in the LPS context (local productive system) – case study Week XIV: Conclusions
TEACHING METHODS	Case study analysis

RECOMMENDED READING	
	Groza, O., Muntele, I., Geografie Umană Generală - note de curs, UAIC, Iaşi, 2005 Groza, O., Ţurcănaşu G., Rusu A., Geografie economică mondială, UAIC, 2005 Haggett, P., Locational analysis in human geography, Londra, 1965 Johnston, R. J., Gregory D., Pratt, G., Watts, M., The Dictionary of Human Geography, Blacwell, New York, 2000 Johnston, R., Sidaway, J.D., Geography&Geographers, Hodder Arnold Publications, New York, 2004 Fujita M., Krugman P., Venables A.J., The Spatial economy, Cities, Regions and International Trade, MIT, 1999

ASSESSMENT METHODS		
	Conditions	Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	NATURAL PARKS AND RESERVES	CODE: JT2413

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor ANGLELA LUPASCU, PhD	Geography

PREREQUISITES	

OBJECTIVES	The course of *Natural Parks and Reserves* aims at the acquisition by students of knowledge regarding the protection and conservation of biodiversity through the mediation of protected areas, respectively national and natural parks, scientific and natural reservations, nature monuments (species, isolated samples, geologic and geomorphologic phenomena).
COURSE CONTENTS	The protection and conservation of biodiversity: biologic diversity, extinction and economy, ecologic economy, environmental ethics. Human induced causes of extinctions. Vulnerability to extinction. Conservation at the population and species level. Conservation at the level of biological community. Conservation of biological diversity and sustainable development. The importance of conservation activities. Short presentation of the Environmental Protection Act in Romania. Protected objectives in Romania. Rare, relict and endemic species. Red book of Iasi county. Nature reservations in Romania: complex reservations (floristic, faunal, geologic, fossil – Piatra Craiului National Park, Crişul Repede Gorges, Cetățile Ponorului and Valea Galbenii, Nerei-Beuşnița Gorges reservation, Cheile Turzii (Turzii Gorges), Lacul Roşu (Red Lake) and Cheile Bicazului (Bicazului Gorges), Pietrosul Mare-Rodnei, Cazanele Dunării, Lacul Bâlea (Bâlea Lake) and Golul alpin Bâlea, Delta Dunării (Danube Delta)), floristic and fossil reservations, geologic and geomorphologic reservations, speological and paleontological reservations. In the last two lectures there will be presented some of the natural parks and reservations from the Globe.
PRACTICAL	The practical activities will focus on the identification of reservations on maps, consulting determinators, albums, slides etc. of species, groups or places mentioned as protected areas.
TEACHING METHODS	Lectures, debates, problem solving

RECOMMENDED READING	1. Bobirnac B., Popescu M., Cîrțu D., (1984), Rezervații şi monumente ale naturii din Oltenia, Ed. Sport-Turism, Bucureşti 2. Dihoru Gh., Pârvu C., (1987), Plante endemice în flora României, Ed. Ceres, Bucureşti 3. Mohan Gh., Ielenicz M., Pătroescu Maria, (1986), Rezervații şi monumente ale naturii din Muntenia, Ed. Sport-Turism, Bucureşti 4. Nadişan T., Tataru T., Gabor E., Mareş V., (1976), Monumente ale naturii din Maramureş, Ed. Sport-Turism, Bucureşti

ASSESSMENT METHODS	Conditions	Attendance to practical classes
	Criteria	Active participation to practical activities, acquiring the basic knowledge
	Way of evaluation	Written and oral examination
	Formula of the final mark	Test (8th week) - 50% Written exam - 50 %

Anexa I

COURSE TITLE	ENVIRONMENTAL GEOGRAPHY	CODE: JT3503

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor RADU LACATUSU, PhD	Geography

PREREQUISITES	Geomorphology, Physical Geography, Hydrology, Environmental Pollution

OBJECTIVES	General knowledge of the systemic approach to environmental geography. Knowledge of the geosystem as a way of the planet's existence. Knowledge of the geosystem in terms of structure, functionality, level of organisation and movements that occur. Knowledge of the structure, texture and methods of landscape interpretation. Knowledge of geosystem units of the planet Earth. Determination and assessment of interaction between environmental components. Knowledge of methods of geosystem conservation. Knowledge of serious issues of the contemporary world.
COURSE CONTENTS	Week I: Place of environmental geography in the geographical science and its relationship with the adjacent fields. General considerations related to environmental matters. Week II: The concept of system. Applying the general theory of systems in geographical sciences. Week III: Hierarchical system of environment. Week IV: Geographical discontinuity and threshold concept. Week V: Landscape. Structure and texture. Methods of analysis of the landscape. Week VI: Functions and dynamics of the geosystem. WeekVIII: The biotic system and its interactions. Week IX: The social and economic system and its interaction. Week X: Geosystem units in the warm and temperate areas. Week XI: Protection of the geosystem. Week XII: Conservation of the geosystem. Week XIII: Serious fundamental problems of natural and anthropic systems. Week XIV: Serious current problems of human structures.
PRACTICAL	General organisation: During the seminar the issues presented in the course are discussed. It develops, through other exemplifications, theoretical aspects of the course. Students take turns in submitting essays on sequential issues of the course, papers that are reviewed and completed. Many examples use slides or video images.
TEACHING METHODS	Lecture, discussions, modelling

RECOMMENDED READING	1.Ro□u Al., Ungureanu irina, 1977, Geografia mediului înconjurător, Ed.Didactică □i Pedagogică, Bucure□ti 2.Ro□u Al., 1987, Terra-geosistemul vie□ii, Ed. □tiin□ifică □i Enciclopedică, Bucure□ti 3.Ungureanu Irina □i colab., 2003, Geografia mediului. Omul □i natura la început de mileniu,Inst. European, Ia□i 4.Ungureanu Irina, 2005, Geografia mediului, Ed. Univ. Al.I.Cuza, Ia□i 5.Mac I., 2003, □tiin□a mediului, Ed. Europontic, Cluj-Napoca 6.Gu□uleac V.N.,2003, Ecologia land□aftului,Ed. Ruta, Cernău□i 7.Marsh W.M., Grossa J.Jr.,2002, Environmental Geography, John Willey and Sons, New York, Chichester, Weinheim, Brisbane, Toronto, Singapore 8.Rougerie G., Beroutchavili N., 1991, Geosistemes and paysages, Armand Colin Ed., Paris 9.Lester R. Brown, 2008, Planul B3.0 Mobilizare generală pentru salvarea civiliza□iei, Ed. Tehnică, Bucure□ti 10.The World Watch Institute, Starea Lumii. Viitorul nostru urban, 2007, Ed. Tehnică, Bucure□ti 11. The World Watch Institute, Starea Lumii.Inova□ii pentru o economie durabila,2008,Ed. Tehnică,

ASSESSMENT METHODS	Conditions	Attendance of the practical work activities
	Criteria	Active participation in laboratory activities
	Way of evaluation	Oral and written evaluation
	Formula of the final mark	Assessment of participation in laboratory activities 50% Answers at the final examination 50%

Anexa I

COURSE TITLE	BALNEOCLIMATOLOGY	CODE: JT3611

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LUCIAN SFICA	Geography

PREREQUISITES	Meteorology and climatology, Tourism geography

OBJECTIVES	Knowing the role and place of balneoclimatology, as an applicative interdisciplinary science, in tourism activity. Basic knowledge regarding the content, objectives and possibilities of balneary treatments in bathing resorts will be acquired. Notions regarding the natural curing factors and other means of recovery in bathing resorts will be presented. A classification of Romanian bathing resorts, with a general presentation and their specific treatment will also be presented.
COURSE CONTENTS	Week I: The place and role of balneoclimatology as an applied interdisciplinary science in touristic activities Week II: The past of balneoclimatic treatments. History of balneoclimatic research in Romania. Week III: Contents, objectives and possibilities of balneoclimatic treatments. Week IV: General presentation of the natural healing factors – mineral waters, mineral waters for internal treatments, bottled mineral waters; mineral waters for external treatments and thermal mineral waters. Week V: Lakes with therapeutic properties. Therapeutic muds. Week VI: Radioactivity. The therapeutic effect of some natural gases. Week VII: *PARTIAL EVALUATION.* Week VIII: Notions of human bioclimatology; elements of medical biometeorology. Week IXI: Climatic, bioclimatic and topoclimatic regionalisation of Romania. Week X: Complementary technico-medical means and procedures used in physical medicine, balneo-climatotherapy and medical recovery Week XI: Illnesses that need balneoclimatic treatments Week XII: Classification of balneoclimatic resorts in Romania Week XIII: Presentation of balneoclimatic resorts in Romania and their potential for balneary treatments. Week XIV: The impact of climatic changes on touristic activities
PRACTICAL	General presentation: Week I: Weather – favourable or unfavourable factor for touristic activities Week II: Climatic elements and parameters with relevance in the touristic evaluation of the climatic potential Week III: Meteo-climatic conditions in the main balneo-climatic touristic destinations Week IV: Bioclimatic indices - I Week V: Bioclimatic indices - II Week VI: Touristic climatic indices Week VII: Project presentation Week VIII: Criteria for according the balneoclimatic resort status Week IX: Specific infrastructure for balneary resorts Week X: Practical application in the balneology sections of Nicolina Recovery Hospital Week XI: Test Week XII: Touristic destinations of balneary profile in Romania Week XIII: Touristic destinations with balneoclimatic profile in the world Week XIV: Evaluation of final activity
TEACHING METHODS	Lectures, debates, modelling, problem solving

RECOMMENDED READING	
	Ardelean, I., Barnea, M. (1972), *Elemente de biometeorologie medicală,* Edit. Medicală, Bucureşti. Teleki, N., Munteanu, L., Stoicescu, C., Teodoreanu, Elena, Grigore, L. (1984), *Cura balneoclimatică din România,* Edit. Sport-Turism, Bucureşti. Teodoreanu, Elena (2002), *Bioclimatologie umană,* Edit. Academiei, Bucureşti Teodoreanu, Elena, Dacos, Mariana, Voiculescu, Camelia, Enache, L. (1984), *Bioclima staţiunilor balneoclimatice din România,* Edit. Sport-Turism, Bucureşti

ASSESSMENT METHODS		
	Conditions	Attendance to practical classes
	Criteria	Active participation to practical activities
	Way of evaluation	Written and oral examination
	Formula of the final mark	25% project, 15% test, 30% partial evaluation, 30% final evaluation

Anexa I

COURSE TITLE	TOURISM POLICIES AND SUSTAINABLE DEVELOPMENT	CODE: JT3513

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant STOLERIU OANA MIHAELA	Geography

PREREQUISITES	General human geography; Tourism geography

OBJECTIVES	Understanding the importance of tourism policy and planning in the framework of global sustainable development policies; acquiring the analysis models for tourism policies at different scales; understanding the optimal sustainable tourism planning in various socio-spatial contexts.
COURSE CONTENTS	Tourism policy: concepts, definitions. The importance of tourism policies. Tourism planning. Decision factors and levels in tourism policy. Public and private actors. Tourism planning documents. The historical evolution of tourism policies. Conservative policies and tourism planning policy: main features. The socio -economic impact of tourism: positive and negative effects. Mass tourism and standardiSation of the tourism product. Environmental impact of tourism. Types of tourism with negative / positive influence on natural resources. Tourism policy regarding the protected areas. Types of protected areas. The role of international organisations in the preservation of cultural and natural heritage. Ecotourism and sustainable development: specific tourism policy and planning. Regional tourism policies: tourism and sustainable development in mountainous areas. Forms of tourism and the management of tourism phenomena. Seaside tourism. The main guidelines in the conservation and tourism planning policy for coastal areas. Effects of mass tourism. Health tourism: global / national flows; policy and specific planning. Tourism and the development of rural communities. Local identity, specific policies, sustainable planning. Tourism and urbanisation - the impact of tourism on the planning and organization of urban and suburban territory. Diversification of tourism resources. Tourism marketing strategies. Tourism as economic alternative. Management and tourism policy for areas in crisis. Disadvantaged areas, areas affected by armed conflicts or natural phenomena with devastating effects.
PRACTICAL	Global tourism policies. International organisations and their role in the development of tourism policies. Tourism legislation, at various levels. Conservation policies and tourism planning policies: case studies. The socio-economic impact of tourism. Environmental effects of tourism. Analysis methods, specific indicators. Legislation and management for protected areas. Natural reserves and national parks in Romania. Responsible tourism, volunteering, ecotourism. Types of planning and sustainable management of tourism space, bodies involved. Forms of mountain tourism and specific policies. Policies regarding seaside tourism in Romania. Tourism policies focused on (rural) local communities. Tourism policy regarding big cities/ small towns in Romania. Analysis of tourism marketing strategies. Promoting of touristic regions / areas.
TEACHING METHODS	Interactive lectures, use of multimedia, heuristic conversation, problematisation

RECOMMENDED READING	Muntele I., Iaţu C. - *Geografia Turismului. Concepte, metode şi forme de manifestare spaţio-temporală*, Edit. Sedcomlibris, Iaşi, 2006; Lozato-Giotart J-P - *Geographie du tourisme*, Masson, Paris, 1991; Debarbieux B. - *Tourisme et montagne*, Economica, Paris, 1995; Cazey G., Potier F. - *Le tourisme urbain*, PUF, Paris, 1996; Harris R., Griffin T., Williams *P. - Sustainable Tourism: A Global Perspective*, Elsevier Science, Oxford, 2003 ; *Duhamel P., Sacareau I. - Le tourisme dans le monde,* A. Colin, Paris, 1998; Patin V. – *Tourisme et patrimoine*, La Documentation Francaise, Paris, 2005; Bran F.Marin D, Şimon T. – *Turismul rural. Modelul european*, Edit. Economică, Bucureşti, 1997; Gherasim t. Gherasim D. – *Marketing turistic*, Edit. Economică, Bucureşti, 1999; Stock M , Dehoorne O., Duhamel Ph.– *Le tourisme. Acteurs, lieux, enjeux*, Belin,Paris, 2003

ASSESSMENT METHODS	Conditions	Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts. Capacity of synthesising and applying the acquired knowledge in a wider geographical context
	Way of evaluation	Continuous evaluation during practical work. Final project
	Formula of the final mark	50% evaluation during practical work, 50% final exam

Anexa I

COURSE TITLE	GEOGRAPHY OF MINERAL AND THERMAL WATERS	CODE: JGT3306

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2	2			56	94	-	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant IONUT MINEA, PhD	Geography

PREREQUISITES	General physical geography; Geography of natural resources, Hydrology

OBJECTIVES	The course of *Geography of mineral and thermal waters* seeks to improve the knowledge of these resources at the local and regional level and their forms of exploitation.
COURSE CONTENTS	Definition. The history of the exploitation of mineral and thermal waters in Romania. The hydrogeological characteristics of the mineral and thermal waters. Physical and chemical properties. The classification of mineral waters. The biological conditions of mineral and thermal waters. Renewable sources of energy. Mineral waters in Romania. Mineral waters on the Globe. Geothermal energy. Thermal waters in Romania. Thermal resources on the Globe.
PRACTICAL	Visit at the *Amfiteatru* bottle-filling station in Iasi. Analysis of the chemistry and quality of the *Amfiteatru* mineral water and other commercial mineral waters in Romania using ternary diagrams, Stiff diagrams or Scholler-Berkaloff diagrams. Presentation of some documentaries about the genesis of mineral and thermal waters and the ways in which they can be capitalised on in Romania and on the Globe. Presentation of the group project about mineral and thermal waters from some parts of Romania.
TEACHING METHODS	Lecture and problematisation

RECOMMENDED READING	PREDA Ion - Resurse de ape minerale si termale : note de curs si lucrari practice, 1981, VARDUCA A. (1997), *Hidrochimie şi poluarea chimică a apelor*, Edit. *H*G*A*, Bucureşti. VERNESCU Mihail - Apele minerale : captare, transport prin conducte, conditionare, inmagazinare, distributie, 1988 PRICAJAN Artemiu - Apele minerale si termale din Romania, 1972, POPA Iulian, editor - MINERAL and thermal groundwater: Proceediungs of the International Symposium, Miercurea Ciuc, Romania, 1998, Unitatea centrala DUMITRESCU Cornel - Dialog despre apele minerale, 1984, BEJAN Vlad - Folosirea apelor minerale şi nămolului de la Nicolina-Iaşi, 1981 *** HARTA apelor minerale şi termale din R. S. România, 1981, * * * (1971) – *Râurile României. Monografie hidrologică*, I.M.H., Bucureşti * * * (1961) – *Apele minerale şi nămolurile terapeutice din R.S.R.,* Edit. Medicală

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

THE FIELD OF GEOGRAPHY

Speciality LAND PLANNING

Anexa I

COURSE TITLE	TOPOGRAPHY WITH ELEMENTS OF GEODESY	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MIHAI CIPRIAN MARGARINT, PhD	Geography

PREREQUISITES	

OBJECTIVES	The discipline has as objective the acquiring of the principles and instruments used for topographic measurements. Also, students need to acquire the methods used in the drawing topographic plans and maps, strictly needed for urban planning studies. A fundamental aspect of the large scale representations in their reference to the ellipsoid, respectively the terrestrial geoid, notions approached through a general presentation of the notions of geodesy.
COURSE CONTENTS	Introduction. Objectives and divisions of terrestrial measurements. Short history of terrestrial measurements. Evolution of topographic instruments. Perspectives. Planimetry and terrain levelling. Helping points. Analogical topographic products. Topographic calculation notions. The topographic circle. Measuring units. Coordinate systems. Errors and tolerances. Classification. Corrections. Marking and signalling topographic points. Marking works. Direct and indirect measurements of distances. Angle measurements. Methods. Topographic surface mapping. Methods. Intersections and triangulations-trilaterations. GPS positioning methods. Registering GPS measurements. Principles. Levelling measurements. Reference surfaces. Geodesic datum. Reduction to reference surface. The Stereographic 70 projection on unique secant plane. UTM projection.
PRACTICAL	Topographic plan. Topographic map. Trigonometry notions. Topographic and geodesic points. Establishing the position of topographic apparatuses. Stadimetric measurement of distances. Telemetric measurements of distances. The theodolite. Angle measurements. Terrain levelling. Instruments and methods. Conducting calculations for a topographic measurement. Plane representation of data.
TEACHING METHODS	Lectures, debates, modelling, problem solving

RECOMMENDED READING	Băican, V. (1988) – Cartografie – Topografie, Lucrări practice, Iaşi. Boş, N., Iacobescu O. (2007) – Topografie modernă, Edit C.H.Beck, Bucureşti. Deaconescu, C. şi colab. (1979) – Topografie şi desen tehnic, Edit. Did. Şi Ped, Bucureşti. Dragomir, V. şi colab. (1970) – Topografie militară, DTM, Bucureşti. Mărgărint, M.C. (1999) – Cartografie cu elemente de topografie, Univ. „Al. I. Cuza", Iaşi, Curs IDD. Osaci-Costache Gabriela (2006) – Topografie – Cartografie, Edit. Uniiversitară, Bucureşti. Russu, A. (1974) – Topografie cu elemente de geodezie şi fotogrammetrie, Edit. Ceres, Bucureşti, Săndulache, Al., Sficlea, V. (1970) – Cartografie – Topografie, Edit. Did. Şi Ped, Bucureşti.

ASSESSMENT METHODS	Conditions	Attendance of practical classes
	Criteria	Active participation to practical activities
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final project

Anexa I

COURSE TITLE	CARTOGRAPHY WITH ELEMENTS OF GEOMATICS	CODE: JPT 1208

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Adrian GROZAVU, PhD Assistant Professor Aurelian ROMAN, PhD	Geography

PREREQUISITES	

OBJECTIVES	Transferring to the students theoretical knowledge about the most important aspects of Cartography (field of study, historical evolution, cartographical products, methods of cartographical representation etc.) and about the basic problems of Geographical Information Systems (G.I.S.): definition, role of G.I.S. in geosystem analysis, drawing up and management of a G.I.S. The aim of the mastering of the theoretical concepts by the students is the acquiring of the skills necessary in the didactic activity and for scientific research application. Forming the ability of creating data bases and performing geostatistical analysis. Forming the abilities necessary for the devising of map background and for digital mapping.
COURSE CONTENTS	1. Cartography (general presentation, development). 2. Cartographical products. 3. The map as basic cartographic product (characteristics, components, classification). 4. Methods of cartographical representation. 5. Data representation and hoarding. 6. G.I.S. – concepts, categories and particularities. 7. Conception, drawing up and management of a G.I.S. 8. Data conversion and processing. 9. Elaboration of thematic layers. Complex cartographical compositions. 10. Data displaying, printing and distribution. Infrastructures and spatial data.
PRACTICAL	Exercises of map utilisation (reading and right interpretation, calculation and measurements etc.); Elaboration of graphical and cartographical materials; Spatial data importing and georeferencing; Data representation and hoarding into a G.I.S.; Vector editing. Data integration techniques.
TEACHING METHODS	Lecture; demonstration using audio-visual means (video-projector) and substitutes (maps, graphics etc.); exercises

RECOMMENDED READING	1. Béguin, Michèle, Pumain, Denise, 2005, *La représentation des données géographiques. Statistique et cartographie,* Edit. Armand Colin, Paris; 2. Dumolard, P., Dubus, Nathalie, Charleux, Laure, 2003, *Les statistiques en géographie*, Edit. Belin, Paris; 3. Iosep, I., Grozavu, A., 2003, *Cartografie. Îndrumar de activități asistate pentru învățământ la distanță*, Edit. Universității "Ştefan cel Mare" Suceava; 4. Longley, P. A., 2005, *GIS and Science*, Edit. John Wiley and Sons, London. 5. Maguire, D. J., Goodchild, M. F., Rhind, D., 1991, *Geographical Information Systems: Principles and Applications*, Longman Scientific and Technical. 6. Rouleau, B., 1991, *Méthodes de la cartographie,* Presses du CNRS; 7. Săndulache, Al., Sficlea, V., 1970, *Cartografie - topografie,* Edit. Didactică şi Pedagogică, Bucureşti; 8. Zanin, Christine, Trémélo, Marie-Laure, 2002, *Savoir faire une carte*, Edit. Belin, Paris;

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	THEORY OF TERRITORIAL PLANNING	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	General (physical and human) geography

OBJECTIVES	Assimilation of concepts of spatial organization and territorial planning, of analysis methods of the spatial structures, of the main theories referring to territorial planning; initiation in territorial planning policies; understanding the role of the state and of communities in the process.
COURSE CONTENTS	Introduction to issues of territorial planning. Organization of space; Spatial structures; Territorial planning and regional development; The principles of planning and development policies; Concept, specific notions and terms of territorial planning; Space organization principles; Analysis of spatial punctiform structures. Analysis of spatial concentration and dispersion; Analysis of networks; Network classification; Graph theory; Analysis of spatial planiform structures; Planiform structures as a result of spatial interaction processes. Model of central places; Rank-size rule. Indices and indicators of localization. European and Romanian policies of regional development and territorial planning; Metamorphosis of the modern spatial structures in the context of the postmodern civilization paradigm.
PRACTICAL	Chorema – general presentation; From chorema to reality; From reality to chorema; Information and communication in territorial planning. Comparison of the chorema sets referring to the development regions coming from two sources: Romanian Atlas (RAO, Bucharest, 2000) and the on-line Atlas of Romania; Practical analysis of a spatial punctiform structure, of a spatial reticular structure and of a planiform structure. Databases in spatial planning; Presentation of an example of statistic data processing software; Geographical chain: from land to map; Elaboration of a research report.
TEACHING METHODS	Interactive course based on the use of media.

RECOMMENDED READING	Benedek, J. (2004) – Amenajarea teritoriului şi dezvoltarea regională , PU Clujeană, Cluj; DATAR (1988) – Atlas de l'Aménagement du territoire, DATAR, Paris; Dumolard, P., 1981 – L'espace différencié, Economica, Paris ; Groza, O. (2005) – Bazele teoretice ale amenajarii teritoriale, Univ. „Alexandru Ioan Cuza", Iaşi; Lajugie, J.; Delfaud, P.; Lacour, Cl., 1979 – Espace régional et aménagement du territoire, Précis Dalloz, Dalloz, Paris ; Madiot, Y. (1993) – L'Aménagement du territoire, Masson, Paris ; Merlin, P.; Choay, F. (2000) – Dictionnaire de l'urbanisme et de l'aménagement, PUF, Paris ; Monod, J.; Castelbajac Ph. De (2002) – L'aménagement du territoire, PUF, Paris; Nonn, H. (2002) – L'aménagement du territoire en Europe Occidentale, Ellipses, Paris; Rey, V. (2001) – Atlasul României, RAO, Bucharest; www. mdlpl.ro; www.espon.eu

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	DIGITAL CARTOGRAPHY	CODE: JPT2316

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MIHAI CIPRIAN MARGARINT, PhD	Geography

PREREQUISITES	Cartography with elements of Topography, General Geography

OBJECTIVES	Acquiring the theoretical and practical issues related to the creation of digital maps; acquiring modern methods in cartography (data acquisition, processing and extracting spatial referenced information). The specificity of the creation of thematic maps through numerical methods.
COURSE CONTENTS	Introduction, definitions, terminology. Thematic maps. Systems of representing data in digital cartography. The vector system (graphic elements, representation). Raster system; digital map resolution; relation to the proportion scale. Attributes. Spatial data structures. Topology. Structural schemes of systems; modelling systems. Methods of spatial data acquisition. Scanning, digitizing. Topographic measurements; total stations. Methods of spatial data acquisition. Aerophotogrammetric images. Satellite images. Global positioning system (GPS). Image processing; editing; symbolizing. Geographic modelling. Bi- and three-dimensional models; properties; exploring. Mapping natural and anthropic elements. Representing natural elements of the geosystem. Representing anthropic elements of the geosystem. Map editing.
PRACTICAL	Activity planning. Digitizing. Interpolation. Knowledge testing. Map editing. Map printing. Final evaluation
TEACHING METHODS	Lectures, debates, modelling, problem solving

RECOMMENDED READING	Armaş, Iuliana, Damian, R (2001) – Cartarea şi cartografierea elementelor de mediu, Edit. Encicl., Bucureşti. Baduț, M. (2004) – GIS, fundamente practice. Edit. Albastră, Cluj-Napoca. Haidu, I., Haidu, C. (1998) – SIG – Analiză spațială, Edit. HGA, Bucureşti. Imbroane A. M., Moore D. (1999) – *Inițiere în GIS şi teledetecție*, Presa Univ. Clujeană, Cluj Napoca. Mărgărint, M.C. (1999) – Cartografie cu elemente de topografie, Univ. „Al. I. Cuza", Iaşi, Curs IDD. Nițu, C. ş.a. (2002) – Sisteme informaționale geografice şi cartografie computerizată, Edit. Univ. din Bucureşti. Rădoane Maria şi colab. (1996) – Analiza cantitativă în geografia fizică, Edit. Univ. „Al. I. Cuza", Iaşi Săndulache, Al., Sficlea, V. (1970) – Cartografie – Topografie, Edit. Did. Şi Ped, Bucureşti. Zeiler, M. (1999) – Modelling our World, New York.

ASSESSMENT METHODS	Conditions	Attendance of practical classes
	Criteria	Active participation to practical activities
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final project

Anexa I

COURSE TITLE	LOCATION OF INDUSTRIAL ACTIVITIES	CODE: JPT3607

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant STOLERIU OANA MIHAELA	Geography

PREREQUISITES	Economic geography; General human geography; Theoretical basis of territorial planning

OBJECTIVES	Understanding the position and the role of secondary sector activities within spatial organization and planning; acquiring the principles of the spatial dynamics of industrial activities; acquiring the analysis methodology for the territorial phenomena due to the spatial dynamics of industrial activities
COURSE CONTENTS	Introduction to the geographical dimension of industrial activities. Industry and industrialization. The industry within the territorial economic system. Difficulties related to the taxonomy and statistical recordings. Location of industries. The distinction between location and activities. Spatial dimensions of industrial activities. The spatial organization of an enterprise. Relations between the enterprise and the plant. Analysis of the location of industrial activities. Location factors and opportunities at macro-spatial scale. Location of industries and comparative advantages. Theories regarding the comparative advantages. Competitive advantages. Economies of scale. Competition, monopoly. Location factors and policies for the industrial activities at national level. Theories of industrial activity location. Pre-Weber models. Weber's model. Location models during the period 1900-1950. Models of industrial activity location. Behavioural models. Systemic models. The structural and radical approach. Spatial dynamics of industrial activities. Technological development. Globalization. Industrial centralization and decentralization. The New Spatial Division of Labour. The location decision. Decision scale and spatial effects. Dynamics of heavy industries. Dynamics of light industries. High tech industries. Technopoles. National development policies focused on industry. The state between citizens and enterprise. Industry and territorial identity.
PRACTICAL	The economic importance of industrial activities. Statistical indicators. The evolution of industrial activities. Spatial differentiation. Indicators for the spatial distribution of industry. The location index. The disparity index. The shift and share analysis. Globalization. Policy makers at global scale. Case studies. Typologies: global industrial structures. The developed countries. Industrial structures in transition. The new industrialized countries. The developing countries. Industrial structures at national scale: comparative analysis. Analysis of industrial location at urban/local scale.
TEACHING METHODS	Lectures supported by video projector; problematisation and heuristic conversation

RECOMMENDED READING	Merenne-Schoumaker, Bernadette – *La localisation des industries*, Nathan, Paris, 1991 Muntele, I., Iațu, C. – *Geografie economică*, Bucureşti, 2002 Groza, O., Țurcănaşu, G., Rusu, Al. – *Geografie economică*, Iaşi, 2005 Groza, O. – *Bazele teoretice ale planificării teritoriale*, Iaşii, 2005 Groza, O. – *Les territoires de l'industrie*, Edit. Didactică şi Pedagogică, Bucureşti, 2003 Groza, O. – *Geografia Industriei*, Edit. UAIC, Iaşi, 2001 Harrington J.W., Warf B. - *Industrial location. Principles, Practice and Policy*, Routledge, London, 2002 Bailly, A ; Ferras, R ; Pumain, D - *Encyclopédie de Géographie*, Economica, 1992 Brunet, R, Ferras, R, Théry, H,1992 - *Les mots de la géographie. Dictionnaire critique*, RECLUS – La documentation française, Paris – Montpellier

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	PLANNING AND IMPROVEMENT OF AGRICULTURAL LAND	CODE: JPT3609

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	102	5	P + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor ION IONIȚĂ, PhD	Geography

PREREQUISITES	Geomorphology, Soil Science

OBJECTIVES	- assimilation of the theoretical knowledge on methods of land planning and conservation practices; - learning the practical experience of field implementation of planning and conservation practices.
COURSE CONTENTS	1. Goals and importance of both land planning and land improvement; Profiling and sizing of agricultural units; Categories in land use. 2. Land planning of the cropland; Crop rotation; Land planning of vineyards and orchards; Planning of the pastureland. 3. First week of assessment. 4. Road network; Irrigation systems; Soil erosion control; Land reclamation on landslides. 5. National and global experiences on best management practices. 6. Second week of assessment.
PRACTICAL	Week I-III: Identifying land use categories on topographic maps; DEM output on representative areas; Land capability for farming. Weeks IV-VII: Sizing of the farms on cropland; Location of the farm units according to the landforms; Field trip in the Barlad Plateau. Week VIII: First week of assessment. Week IX-XIII: Sizing and location of vineyards, orchards and pastures; Field trip in the Moldavian Plain. Weeks XIV-XV: Drawing agricultural roads. Sizing and layout of terraces in the field. Week XVI: Second week of assessment.
TEACHING METHODS	- lectures supported by both projector and overhead projector; - issues of interest and heuristic conversation.

RECOMMENDED READING	1. Bally, R. J., Stănescu, P. (1977) – Alunecările şi stabilitatea versanților agricoli. Edit. Ceres, Bucureşti. 2. Băloi, V., Ionescu, V. (1986) – Apărarea terenurilor agricole împotriva eroziunii, alunecărilor şi inundațiilor. Edit. Ceres, Buc. 3. Dumitrescu, M. et al. (1999) – Ameliorarea pajiştilor degradate din zona de silvostepă. Edit. „Ion Ionescu de la Brad", Iaşi. 4. Florea, N. (2003) – Degradarea, protecția şi ameliorarea solurilor şi terenurilor. Bucureşti. 5. Moțoc, M., Munteanu, S., Băloiu, V., Stănescu, P., Mihai, Gh. (1975) – Eroziunea solului şi metodele de combatere. Edit. Ceres, Buc. 6. Nițu, I. et al (1985) – Ameliorarea şi valorificarea solurilor sărăturate din România. Edit. Ceres, Buc. 7. Savu, P., Bucur, D. (2002) – Organizarea şi amenajarea teritoriului agricol cu lucrări de îmbunătățiri funciare. Edit. „Ion Ionescu de la Brad", Iaşi. 8. Surd V., Bols I., Zotic V., Chira Carmen (2005) – Amenajarea teritoriului şi infrastructuri tehnice. Edit. Presa Universitară Clujeană.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical works (out of a maximum of 3 points) Compulsory attendance to practical works
	Criteria	Thorough assimilation of key concepts in the field; The capacity of synthesizing the acquired knowledge in a wider geographical context; Ability to apply the acquired knowledge to specific situations.
	Way of evaluation	Continuous evaluation during practical works and oral examination
	Formula of the final mark	10% for course attendance; 30% for practical work attendance and activity; 30% first assessment and 30% second assessment.

Anexa I

COURSE TITLE	TERRITORIAL SYSTEMS	CODE: JPT3611

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		64	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor GEORGE TURCANASU, PhD	Geography

PREREQUISITES	Human Geography (population and settlements), Thematic Cartography and Communication of Research Results, Urban Structures and Territorial Cohesion, Geomatics

OBJECTIVES	Highlighting the key features of territorial systems: highlighting of key parameters of regional development; emphasizing the role of the network of settlements in setting up a territorial system; specifying the fundamental features of a territorial system in the context of sustainable development
COURSE CONTENTS	1. Territorial systems vs. space systems. 2. Homogeneous territorial systems vs. heterogeneous territorial systems. The concept of region 3. The role of centrality and functional specialization in the urban hierarchy 4. The role of centrality and functional specialization in the urban hierarchy. monocentrality vs. polycentrality 5. The role of centrality and functional specialization in the urban hierarchy. poles, axes, regions of development 6. Time in territorial systems. temporality and remnant 7. Time in territorial systems - transient. Systemgenesis and de-systemgenesis 8. Time in territorial systems – resilience in territorial systems 9. The taxonomy of territorial systems. Local systems 10. The taxonomy of territorial systems. Intermediate systems (regional / national) and the global system 11. European programmes 12. Models and statistical modelling in regional geography 13. Trans-disciplinary approaches to regional science 14. The spatial logic of territorial systems. Instead of conclusions
PRACTICAL	Week I: Introduction, concepts, methods Week II: Policies for regional development in Romania Week III: Territorial Development Policies in Europe Week IV: Applying the methods of analysis of the development regions of Romania Week V: Application of methods of analysis of the development regions of Romania Week VI: Application of methods of analysis of the development regions of Romania Week VII: Application of methods of analysis of the development regions of Romania Week IX: Application of methods of analysis of the development regions of Romania Week X: Application of methods of analysis of the development regions of Romania Week XI: Application of methods of analysis of European territorial structures using the ESPON database Week XII: Application of methods of analysis of European territorial structures using the ESPON database Week XIII: application of methods of analysis of European territorial structures using the ESPON database Week XIV: Application of methods of analysis of European territorial structures using the ESPON database Week XV: Conclusion. Spatial interaction models used in regional geography
TEACHING METHODS	Exposition, conversation, modelling, description

RECOMMENDED READING	
	GROZA O. (2003) – *Bazele teoretice ale planificării teritoriale*, Universitatea „Alexandru Ioan Cuza" Iaşi HALL P., PAIN K. (2006) - *The Polycentric Metropolis*, Eartscan, London-Sterling VA, Londra IANOŞ I. (1987) – *Oraşele şi organizarea spațiului geografic*, Ed. Academiei, Bucureşti IANOŞ I., HUMEAU J.-B. (2000) - *Teoria sistemelor de aşezări umane*, Ed. Tehnică, Bucureşti MORICONI-EBRARD F. (1993), *L'Urbanisation du Monde*, Anthropos, Paris

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	THE ORGANIZATION OF THE GEOGRAPHICAL SPACE	CODE: JPT3515

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant ALEXANDRU RUSU	Geography

PREREQUISITES	General (physical and human) geography

OBJECTIVES	1. Introducing the students in spatial analysis methods 2. Articulating geographical analysis at different reference scales
COURSE CONTENTS	1. Introduction 2. Organizing urban spaces 3. Organizing rural spaces 4. National planning spatial patterns 5. Models of spatial organization at international scale 6. Some principles of spatial analysis 7. The homo oeconomicus behaviour and the spatial patterns 8. Spatial interaction 9. Spatial auto-correlation 10 Territorial auto-correlation 11. Punctual spatial patterns 12. Surface spatial patterns 13. Networks in geographical space 14. Conclusions
PRACTICAL	Week I: Introduction Week II: Organizing urban spaces – case study Week III: Organizing rural spaces – case study Week IV: National planning spatial patterns – case study Week V: Models of spatial organization at international scale – case study Week VI: Some principles of spatial analysis – case study Week VII: The homo oeconomicus behaviour and the spatial patterns – case study Week VIII: Spatial interaction – case study Week IX: Spatial auto-correlation – case study Week X: Territorial auto-correlation – case study Week XI: Punctual spatial patterns – case study Week XII: Surface spatial patterns – case study Week XIII: Networks in geographical space – case study Week XIV: Conclusions
TEACHING METHODS	Case study analysis

RECOMMENDED READING	Groza, O., Muntele, I., Geografie Umană Generală - note de curs, UAIC, Iaşi, 2005 Haggett, P., Locational analysis in human geography, Londra, 1965 Johnston, R. J., Gregory D., Pratt, G., Watts, M., The Dictionary of Human Geography, Blacwell, New York, 2000 Johnston, R., Sidaway, J.D., Geography&Geographers, Hodder Arnold Publications, New York, 2004 Fujita M., Krugman P., Venables A.J., The Spatial economy, Cities, Regions and International Trade, MIT, 1999 Țurcănaşu, G., Evoluția şi starea actuală a sistemului de aşezări din Moldova, Iaşi, Demiurg, 2006 Ungureanu, Al., Groza, O., Muntele, I., Moldova – populație, economie, aşezări, Corson, Iaşi, 2003 Rey, V., Groza, O., Ianoş, I., Pătroescu, M., Atlasul României, RAO, Bucureşti, 2006

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	HYDROGRAPHIC NETWORK AND LITTORAL ZONE PLANNING	CODE: JPT3513

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	V	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	p	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor GHEORGHE ROMANESCU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Developing the capacity to locate places and facts on the map and in the environment. The understanding of the spatial dimensions of the issues concerning the hydrological risks and the management of watercourses. The understanding and explaining of the functioning rules for the mechanisms which are specific to the management of watercourses in humid areas. The understanding and explaining of the dynamics of the consequences of the hydrological risks.
COURSE CONTENTS	S.1. Hydrological risk – definition.. S.2. Perturbation – impact – natural recovery in the loiotic ecosystems. S.3. The effects of the hydrotechnical works performed on watercourses upon the environment. S.4. Evaluation of the state of watercourse ecosystems. S.5. Evaluation methods for the impact of the planning works on the environment. S.6, 7. Ecosystemic management of watercourses. S.8 Ecological rehabilitation of watercourse ecosystems. S.9.10 Evaluation and rehabilitation of the other areas with hydrological risk, with impact on the watercourses. S.11. Coastal areas – definition. S.12. Littoral typology. S.13.Principples of littoral area planning. S.14. Romanian Black Sea coast.
PRACTICAL	S.1-8. Elaboration and presentation of student projects on the management of watercourses and the preservation of humid zones in Romania and in other states of the world S.9-14. Field work in the river basins which are representative from this point of view, in order to see the advantages and disadvantages of such works
TEACHING METHODS	Lecture, conversation, problematisation, heuristic conversation and description, debate.

RECOMMENDED READING	Amoros C. (1993), *Hydrosystèmes fluviaux*, Masson, Paris. Bravard J.P. (2000), *Les cours d'eau. Dynamique du système fluvial, Armand Colin, Paris.* Carter V. (1996), *Technical Aspects of Wetlands. Wetland Hydrology, Water Quality, and Assoiciated Function*, In: National Water Summary on Wetland Resources, United States Geological Survey, Water-Supply Paper 2425, Washington D.C. Coleman R.E., LaRoe E.T., Theriot R.F. (1996), *Wetland Management and Research. Wetland Resources,* United State Geological Survey, Water-Supply Paper 2425, Washington D.C. Diaconu S. (1999), *Cursuri de apă. Amenajare, impact, reabilitare,* Editura H.G.A., Bucureşti. Minea I., Romanescu Gh. (2007), *Hidrologia mediilor continentale. Aplicații practice,* Casa Editorială DEMIURG, Iaşi. Newson M. (1994), *Hydrology and the river environment*, Clarendon Press, Oxford. Romanescu Gh. (2003), *Dicționar de hidrologie,* Editura Didactică şi Pedagogică, Bucureşti. Romanescu Gh. (2002), *Medii de sedimentare terestre şi acvatice. Delte şi estuare*, Editura Bucovina istorică, Suceava. Romanescu Gh. (2005), *Morpho-hydrological evolution of the Danube Delta, II, Management of water resources and coastline evolution. Land use and the ecological consequences*, Editura Terra Nostra, Iaşi. Romanescu Gh., Romanescu Gabriela, Minea I., Ursu A., Mărgărint M.C., Stoleriu C. (2005), *Inventarierea şi tipologia zonelor umede din Podişul Moldovei,* Editura Didactică şi Pedagogică, Bucureşti.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	FOREST ECOSYSTEMS PLANNING AND MANAGEMENT	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor EUGEN RUSU, PhD	Geography

PREREQUISITES	General Geography

OBJECTIVES	1. Knowledge of methods and principles of spatial management 2. Acquiring methods of spatial analysis and forest management 3. Assimilation of methods for sustainable forest management
COURSE CONTENTS	The forest ecosystems – definition, structure, functionality. Ecological forests factors. Forest dynamics. Types of natural forests. The biodiversity of the forest. Characteristics of forest resorts. The functions and role of forest ecosystems. Balance, vitality and risks in forestry. Quality evaluation of the state forest. Sustainable forest planning. Zoning, the management of facilities, types of property. Optimum organization of farms. Treatments forest, ideal structures. Protection and regeneration of forests. Climate change and forest landscape.
PRACTICAL	Spatial evolution of the forest. Forests of Romania. Forest structure on functional groups. Wood – structure, properties, uses. Secondary products of forests. Hunting and the hunting economy. Conservation and development of forest resources. Forest roads. Types of logging. Types of forest treatments. Forest. Bathing forest derived. Control factors of forest pests. Evolution of the forest landscape. Colloquium – end of activity.
TEACHING METHODS	Lectures, application (data interpretation)

RECOMMENDED READING	1. Dubois J-J. – Les milieux forestieres; aspects geographiques, Paris, Sedes, 1999. 2. Gallochet M. – La foret; ressources et patrimoine, Paris, Ellipse, 2006 3. Viers G. - Geographie des forets, Paris, PUF, 1970 4. Nicolescu B.V. – Silvicultura. Silvotehnica, Brasov, Editura Universitații Transilvania, 2003 5. Leahu I. – Amenajarea pădurilor, Bucuresti, EDP, 2003 6. Ciubotaru P. Exploatarea pădurilor, Bucuresti, Ed. Luxlibris, 1998 7. Florescu Gh., Abrudan I. – Tehnologii de instalare a culturilor forestiere, Ed. Universității Transilvanis, 2003

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

THE FIELD OF GEOGRAPHY

Speciality HYDROLOGY AND METEOROLOGY

Anexa I

COURSE TITLE	GEOGRAPHY OF THE POPULATION AND HUMAN SETTLEMENTS	CODE: JHM1209

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor IONEL MUNTELE, PhD	Geography

PREREQUISITES	General (physical and human) geography; Economic Geography

OBJECTIVES	The presentation of the essential characteristics of the global population and human settlements: distribution, dynamics, structure and geographical mobility
COURSE CONTENTS	1.Theory of the population and of human settlements – geographical approach 2. Spatial distribution of the population 3. Dynamics and structures of the population 4. Spatial mobility of the population 5. Human settlements and physical factors 6.Territoral evolution and distribution of the categories of the settlements 7.The functionality of the human settlements
PRACTICAL	1. Graphical transformation of the statistical information about the population and human settlements 2. Utilisation of graphical materials in the analysis of the population and human settlements 3. Utilisation of geographical bibliography concerning the population and the human Settlement
TEACHING METHODS	1. Prelections with video projection 2. Problematisation and heuristic conversation

RECOMMENDED READING	- Erdeli, G., Dumitrache, L., Geografia populației, Corint, Bucureşti, 2002 - Ungureanu, Al. (coord.), Moldova – Populația, forța de muncă şi aşezările în tranziție, Corson, Iaşi, 2001 - Ungureanu, Al., Muntele I, Geografia populației, Sedcom Libris, Iaşi, 2006 - Ungureanu, Al, Țurcănaşu G. Geografia aşezărilor, Performantica, Iaşi, 2008 - Beaujeu-Garnier, Jacqueline, Chabot, G., Geografia aşezărilor, Ed- Şt şi Encicl., Bucureşti, 1965

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	SPECIFIC PLANNING PROBLEMS REGARDING THE AREAS WITH HYDROLOGICAL RISKS	CODE: JHM2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant CRISTIAN CONSTANTIN STOLERIU	Geography

PREREQUISITES	Hydrology and Ocenaography, Cartography, Geomorphology, Geographic Information Systems.

OBJECTIVES	In addition to the positive role it has in the evolution and development of a geographical area, (depending on the richness of resources), water performs some unfavourable actions over the geographical landscape and human society. These negative actions of water manifest themselves in multiple forms (floods, excess moisture, hydro-morphological changes, solid and chemical overload etc.). These multiple forms can be translated into hydrological hazards. Generally, the hydrological risks are defined as processes that naturally occur at irregular intervals, caused by spontaneous phenomena (local or zonal), accelerated or not by the anthropogenic interference that may cause or not changes of geographical landscape and socio-economic system.
COURSE CONTENTS	Hazard, risk, vulnerability; fluvial geomorphology; the risk of flash floods and floods; risk phenomena hydrology induced by the decline of water temperatures; risk phenomena associated with minimum discharge; risk induced by the excess of humidity; risk generated by the chemical overload of surface water and groundwater; risk generated by the solid material overload of groundwater; hydrotechnical works on the planning of watercourses; technical works for the stabilizing of slopes with geomorphologic risk; hydrological risk monitoring
PRACTICAL	Inventoring and analysing the hydrological and climatic data obtained from hydrometric and meteorological stations in Moldova; identifying and mapping the climatic parameters affecting the hydrological regime of rivers; Making the map supports (ex: river network density); Mapping the isophreatic and hydroisohypse parameter; Elaborating the map of the areas affected by different water risks; Simulation of floods and flood maps using topographic maps; Statistical calculations and economic estimation of disasters caused by floods; Simulation of the building of a dam and economic estimation of the consequences; Modelling in GIS environment of the excessive hydrological elements; Terrain phase (identification and recognition of the main elements of fluvial geomorphology, geomorphological processes, hydrotechnical works)
TEACHING METHODS	Lecture, discussion, modelling - problematisation.

RECOMMENDED READING	Diaconu S. (1999), *Cursuri de apă. Amenajare, impact, reabilitare*, Edit. *H*G*A*, Bucureşti. Newson M. (1994), *Hydrology and the river environment*, Clarendon Press, Oxford, U.S.A Popa R. (1997), *Elemente de hidrodinamica râurilor*, Edit. Dadactică şi Pedagogică, Bucureşti. Preda I., Marosi P. (1971), *Hidrogeologie*, Edit. Didactică şi Pedagogică, Bucureşti. Romanescu Gh., Jigău Gh. (1998), *Geomorfologie*, Edit. Universității de Stat din Moldova, Chişinău. Romanescu Gh. (2002), *Hidrologie generală*, Edit. Universității „Ştefan cel Mare", Suceava. Roşu Corina, Crețu Gh. (1998), *Inundații accidentale*, Edit. *H*G*A*, Bucureşti. Varduca A. (1997), *Hidrochimie şi poluarea chimică a apelor*, Edit. *H*G*A*, Bucureşti. Ujvari I. (1972), *Geografia apelor României*, Edit. Ştiințifică, Bucureşti. Zamfirescu F. (1997), *Elemente de bază în dinamica apelor subterane*, Edit. Didactică şi Pedagogică, Bucureşti.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts, Capacity of synthesising the acquired knowledge in a wider geographical context, Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Written assessment (course), colloquium (practical work)
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	TOPOCLIMATOLOGY AND MICROCLIMATOLOGY	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	3	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	ROMANIAN

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor LIVIU APOSTOL, PhD	Geography

PREREQUISITES	Meteorology and climatology

OBJECTIVES	-topoclimatology and microclimatology – branches of climatology. Practical valences of these branches. Knowing the main laws according to which the principal meteorological elements, phenomena and processes occur and evolve in the air layer close to the Earth's surface. Analysis of genetic factors of the meteorological elements and phenomena and the evolution of meteorological elements and phenomena in a complex and unitary system. Explaining the dependence and interconditioning connections that exist in the evolution of the meteorological and climate processes and the characteristics of the active underlying surface. - analysis at microclimatic and topoclimatic scale of the climatogenetic factors: solar radiation, characteristics of the active underlying surface and general circulation of the atmosphere. Knowing the main characteristics of some microclimates. Determining the climatogenetic characteristics of the active underlying surface. Knowing the specific methods and techniques of measurements in the microclimatic and topoclimatic space and the meteorological equipments used. Making corrections, writing down the results, primary statistic and climatologic treatment. Making correlations and comparisons with the climatologic data. Graphic vertical representations, beginning with the Earth's surface up to 2 m in level. Cartographic representations of microclimates and topoclimates.
COURSE CONTENTS	Week I: The research domain of topoclimatology and microclimatology. Evolution of the notions and the appearance of the branches of climatology. Hierarchical system of the climatic space and the place and role of topoclimatology and microclimatology. History of research. Research methods in topoclimatology and microclimatology/Week II: Solar radiation. Its absorption and reflexion of the various types of terrestrial surface. Changes produced by the variability of the atmospheric environment and atmospheric pollution. Various types of active surfaces and their influence on the reflexion, absorption, transmission and release of heat. Caloric radiation balance of various types of surfaces/Week III: Transport and temporary storage of heat in soil and deep waters. Phase changes of water and caloric transfers/Week IV: Heating processes of the atmosphere. Thermal stratification of the atmosphere. Thermal inversions. Temperature in the air layer close to the ground, during the day and the night/Week V: Wind in the air layer close to terrestrial surface. Friction layer, planetary limit layer. Variation of the wind speed according to height. Rugosity of the terrestrial surfaces and speed changes. The role of the relief in the genesis and evolution of local winds/Week VI: Evaporation, transpiration, evapotranspiration and distribution of water vapours in the air layer close to the terrestrial surface. Variation of various parameters of air humidity according to the characteristics of the active surface/Week VII: Thermal and hygrometric characteristics of the air above waters, snow and ice layer/Week VIII: 1st hour Thermal and higrometric characteristics of the air above the soil covered with vegetation during the year. Forest, meadows and grass lands, various types of agricultural crops. 2nd hour. Partial exam/Week IX: Natural and anthropic elementary topoclimates. Complex topoclimates/Week X: Natural elementary topoclimates. Topoclimates generated by the morphology of the relief. Forest topoclimate. Grassy surface topoclimates. Topoclimates of continental water surfaces/Week XI: Agricultural crop topoclimate/Week XII: Urban topoclimates/Week XIII: Microclimatology. Microclimatic space. Types of microclimates. Variation of climate parameters at various distances of the terrestrial surface/Week XIV: Interior space microclimates.
PRACTICAL	Week I: Characteristics of the microclimatic and topoclimatic measurements. Systematizations/Week II: Classic equipments. Field equipment. Location. Observations program/Week III: Measuring the albedo. Calculation of the insolation. Direct and diffuse radiation for various relief expositions and slopes/Week IV: Microclimatic measurements/Week V: Topoclimatic measurements/Week VI: Determination of thermal inversions/Week VII: Evapotranspiration calculation. Wind at anemometer. Correlations with the vane/Week VIII: Determination procedures for forest atmospherical precipitations/Week IX: Corrections of the topoclimatic and microclimatic measurements/Week X: Relating the results of the microclimatic and especially topoclimatic research to climatic conditions/Week XI: Methods of graphic representation in topoclimatology and microclimatology/Week XII: Topoclimatic maps, special topoclimatic maps and microclimatic maps/Week XIII: Complex and elementary topoclimates in Romania. Climatic classification of complex topoclimates. Topoclimatic map of Romania/Week XIV: Knowledge evaluation.
TEACHING METHODS	Lecture, debate, modelling – problematisation.

RECOMMENDED READING	Berbecel, O., Stancu, M., Ciovică, N., Jianu, V., Apetroaei, Şt., Socor, Elena, Rogodjan, Iulia, Eftimescu, Maria (1970), *Agrometeorologie,* Edit. Ceres, Bucureşti. Bogdan, Octavia (1981), *La régionalisation climatique et topoclimatique de la Roumanie,* R.R.G.G.G., ser. Géogr., t.. 24, Edit. Academiei, Bucureşti Bogdan, Octavia (1993), *Influențele topoclimatice induse de lacurile de acumulare, cu exemplificări la Porțile de Fier,* S.C.G.G.G., ser. Géogr., t.. XL, Edit. Academiei, Bucureşti. Bogdan, Octavia (1993), *The impact of man's activity upon topoclimate,* R.R.G., t. 37, Edit. Academiei, Bucureşti.

ASSESSMENT METHODS	Conditions	Attendance of lectures and practical works
	Criteria	Learning the fundamental knowledge
	Way of evaluation	Test for practical works and partial and final written exam for the course
	Formula of the final mark	Partial exam 50% (of which 1/3 for the practical work activity); final exam 50% (of which 2/3 the course and 1/3 for the practical work activity)

Anexa I

COURSE TITLE	BIOCLIMATOLOGY	CODE: JHM2410

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	ROMANIAN

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor LIVIU APOSTOL, PhD	Geography

PREREQUISITES	Meteorology and Climatology, Topoclimatology and Microclimatology

OBJECTIVES	Knowing the impact of weather and climate on the population and on life on Earth (plants and animals). The influence that permanent or variable physical and chemical properties of the inferior troposphere have over life.
COURSE CONTENTS	I: Introduction. Definition and classification of this branch of science. History of the development of bioclimatology. The significance weather and climate have for life and human activities. II: The influence of weather and climate on plants. Solar radiation and phenophases. Soil and air temperature and thermal adaptation of plants. The effects of climate on water balance of plants. The influence of weather and climate on forests. The influence of vegetal biotypes on the population. III: The influence on weather and climate on animals. Effects of the meteorological and climate stimuli on domestic and wild animals, birds, fish and insects. The influence of weather and climate on diseases caused by insects. The influence of weather and climate on livestock fertility and raising, on their diseases and on livestock production. IV: Agroclimatology. Forest climatology. V. The action of meteorological and climatological stimuli on the human body. Thermoregulation and altitude adaptation mechanisms. VI: Exterior climate and the climate of the interiors. Electrical conductivity of air, changes in the electrical field of the air, walls temperature, air movements and air changes, humidity. VII: Effect of the meteorological stimuli on the basic processes of human physiology. Effect of the solar radiation, of temperature, pressure, air ionization, aerosols, electrostatic, electromagnetic, magnetic and gravitational fields. Effect of cosmic radiation and of radioactive deposits. VIII: Effects of air pollution, of noise, thermic, vibration and radioactive pollution. Factors that influence the result of biometeorological and bioclimatic stimuli. IX: Influence of meteorological and climatic stimuli on the main diseases of the population. Seasonal diseases, allergies, bronchitis, asthma, cancer, cardiovascular diseases, ophthalmologic disorders, infectious diseases, mental processes and psychiatric disorders, rheumatisms, dermatological diseases. Disorders caused by heat, cold and by altitude increase. Other disorders and diseases caused by weather and climate. X: Effects of the weather and climate on human life. Characteristics of human adaptation to climate extremes through nutrition, clothing, habitation, habitation heating, air conditioning. Adaptation processes and disorders and beneficial effects produced by weather and climate during voyages. XI: Other effects produced by weather and climate on humans. XII: Therapeutic applications of biometeorological and bioclimatic effects. Applications of bioclimatology in urban systematization and architecture. XIII Medical bioclimatology.
PRACTICAL	General organization: Week I: The characteristics measurements and data processing for bioclimatology/Week II: Physical and chemical characteristics of terrestrial atmosphere/Week III: Use of climate, topoclimate and microclimate data in bioclimatology/Week IV: Methodology of bioclimate research/Week V: Practical implications of the climate, topoclimate and microclimate influence on plants/Week VI: Weather and climate influence on crops/Week VII: Weather and climate influence on animals. Practical aspects/Week VIII: Bioclimatic, agro-climatic and forest climatology indices/Week IX: Effects of weather and climate on humans/Week X: Bioclimatic indices, comfort indices/Week XI: Human bioclimatology of interior spaces/Week XII: Determination of atmospheric pollutants Maximum admissible concentrations. Effects/Week XIII: Medical bioclimatology/Week XIV. Knowledge evaluation.
TEACHING METHODS	Lecture, debate, modelling – problematisation.

RECOMMENDED READING	
	Ardelean, I., Barnea, M. (1972), *Elemente de biometeorologie medicală,* Edit. Medicală, Bucureşti. Berbecel, O., Stancu, M., Covcă, N., Jianu, V., Apetroaiei, Şt., Socor, Iena, Rogodjan, Iulia, Eftimescu, Maria (1970), *Agrometeorologie,* Edit. Ceres, Bucureşti. Charpin, D. (2004), *L'air et la santé,* Flamarion, Paris. Chiriță, C., Vlad, I., Păunescu, C., Pătrăşcoiu, N., Roşu, C., Iancu, I. (1977), *Staţiuni forestiere, vol. II,* Edit. Academiei, Bucureşti. Ciulache S., Ionac, Nicoleta (1998), *Climatologie comportamentală,* Edit. Univ. Bucureşti.

ASSESSMENT METHODS		
	Conditions	Attendance of lectures and practical works
	Criteria	Learning the fundamental knowledge
	Way of evaluation	Test for practical works and partial and final written exam for the course
	Formula of the final mark	Partial exam 50% (of which 1/3 for the activity of the practical works); final exam 50% (of which 1/3 for the activity of the practical works)

Anexa I

COURSE TITLE	GEOGRAPHY OF THE CONTINENTS – REGIONAL DIFFERENTIATION	CODE: JHM3503

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	V	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor EUGEN RUSU, PhD	Geography

PREREQUISITES	General Geography

OBJECTIVES	Knowing the physical and human resources of the continents. Acquiring methods and techniques of regional analysis. Acquiring synthetic methods of territorial and spatial differentiation.
COURSE CONTENTS	Current problems of the contemporary world. Demography, economy, climate change. Physical features – geographical Europe. Geodemographic features of Europe. Regions of Europe. ESPON. African regional differentiation. Socio-economic problems of Africa. Asia – great territorial, geographic and physical diversity. Progressive demographics. Human pressure on the Asian space. Asian economic contrasts. Social and economic emergence of China. America. Territorial unity and diversity. Demographics of America. Force migration. U.S. economy difference. U.S. economic slow motion. The emergence of Brazil. Oceania. Useful space and repulsive space in Australia. Contrasting civilizations in Oceania. Social development and computerization in the extra-European space.
PRACTICAL	Regionalization in the European space. Climate differentiation in Africa. The Sahara and the Congo Depression. Comparative study. Social issues – economy of the Sahel. Regional problems of the African territory. Influence of the monsoon upon the Asian economy. Demographic spontaneous and controlled behaviour in Asia. Asia's economic tigers and dragons. Threats to the biodiversity of the Amazonian forest. Spatial Planning in the USA. Agricultural and industrial models. Diverse ethnic and American democratic convergence. The Australian concentric space. Urban macrocephaly in Australia. Unique flora and fauna of Australia. New Zealand – a model of economic development and nature conservation.
TEACHING METHODS	Lectures, application (data interpretation)

RECOMMENDED READING	Demangeot J. – *Geographie physique intertropicale*, Edition Armand Colin, Paris, 1999. Rougerie G. – *La montagne dans la biosphere*, Edition Armand Colin, Paris, 1990 Viers G. – *Geographie zonale des regions froids et temperes*, Edition Nathan, Paris, 1970 Lageat Y. – *Les milieux phisiques continentaux* , Edition Belin, Paris, 2004 Demangeot J. – *Les milieux naturels du globe,* Edition Armand Colin, Paris, 1998 Leroux M. – *Global warming – mythe ou realite?*, Anales de geographie, nr. 624, 2002 Brunet R. – *Geographie Universelle*, Edition Belin – Reclus, Paris, 1995 Rusu E. – *Geografia continentelor. Africa*, Editura Didactică şi Pedagogică, Bucureşti, 2007 Rusu E. – *Geografia continentelor. Asia*, Editura Didactică şi Pedagogică, Bucureşti, 2003 Rusu E. – *Geografia continentelor. Australia şi Oceania*, Editura Didactică şi Pedagogică, Bucureşti, 1998

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	SPECIAL PROBLEMS OF THE ROMANIAN HYDROLOGY	CODE: JMH2503

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant IONUT MINEA, PhD	Geography

PREREQUISITES	General physical geography; Hydrology, Management and exploitation of atmospheric resources

OBJECTIVES	The analysis of the most important hydrology problems which appear in Romania.
COURSE CONTENTS	Local and national monitoring network of water resources. Water resources in Romania – current problems in management and exploitation. Problems of the management and exploitation of surface and underground water in Romania. Anthropic lakes and their importance in the landscape. Hydrological risk associated with maximum flow (floods and inundations). Hydrological risks associated with minimum flow (drainage of rivers). The impact of the construction of anthropic lakes upon the surface and underground flow. Hydroclimatic changes of the lacustrine systems. The Danube Delta between economic management and natural preservation. The Black Sea – problems of the landscape. Mineral and thermal water resources in Romania.
PRACTICAL	Identification of some special problems of the management and exploitation of surface and underground water in a local basin (Bahlui). Field application meant to evaluate the impact of a natural lake in a mountainous area (Crucii lake - Stanisoara Mountains) Application of computer modelling in the management of surface and underground water in Romania (Modflow programme, MIKE SHE programme)
TEACHING METHODS	Lecture and problematisation

RECOMMENDED READING	Diaconu C. (1988), *Râurile – de la inundații la secetă,* Edit. Tehnică, Bucureşti. Diaconu C., Şerban P. (1994), *Sinteze şi regionalizări hidrologice,* Edit. Tehnică, Bucureşti. Drobot R. (1997), *Bazele statistice ale hidrologiei,* Edit. Didactică şi Pedagogică, Bucureşti. Gâştescu P. (1971), *Lacurile din România*, Edit Academiei, Bucureşti. Popa R. (1997), *Elemente de hidrodinamica râurilor*, Edit. Dadactică şi Pedagogică, Bucureşti. Preda I., Marosi P. (1971), *Hidrogeologie*, Edit. Didactică şi Pedagogică, Bucureşti. Şerban P., Stănescu, V., Roman, P., (1989) *Hidrologie dinamică*, Edit. Tehnică, Bucureşti. Ujvari, I., (1972) *Geografia apelor României*, Edit. Ştiințifică, Bucureşti Varduca A. (1997), *Hidrochimie şi poluarea chimică a apelor*, Edit. *H*G*A*, Bucureşti. Zăvoianu, I., (1985) *Morphometry of drainage basins*, Edit. Elsevier, Amsterdam. * * * (1971) – *Râurile României. Monografie hidrologică*, I.M.H., Bucureşti * * * (1961) – *Apele minerale şi nămolurile terapeutice din R.S.R.,* Edit. Medicală, Bucureşti, vol. I, 1961, vol. II, 1965, vol.III, 1970.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	GEOGRAPHY OF THE BLACK SEA	CODE: JHM3505

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	V	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor GHEORGHE ROMANESCU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Developing the capacity to locate places and facts on the map and in the environment. The understanding of the spatial dimensions of the issues concerning the Black Sea. The understanding and explaining of the functioning rules of the mechanisms specific to the marine basins. The understanding and explaining of the dynamics of the implications of the hydrological risks on the shore.
COURSE CONTENTS	S. 1. Geographical location, limits. S. 2, 3. Black Sea – component of the Mediterranean Basin. S. 4, 5. Genesis. S. 6, 7. Morphology. S. 8, 9. Climate. S. 10, 11. Hydrography. S. 12. Life in the Black Sea and fishing. S. 13, 14. Romanian Black Sea coast.
PRACTICAL	S.1-8. Elaboration and presentation of projects on the Black Sea and Romanian shore problems. S. 9-14. Collecting climatological and hydrological data from the Black Sea basin.
TEACHING METHODS	Lecture, conversation, problematisation, heuristic conversation and description, debate.

RECOMMENDED READING	Ballard R.D., Coleman D.F., Rosenberg G.D. (2000), *Further evidence of abrupt Holocene drowning of the Black Sea shelf,* Marine Geology, 170. Bandoc G. (2005), *Potențialul eolian al litoralului românesc al Mării Negre,* Editura Matrix Rom, Bucureşti. Beşleagă N. (1972), *Elemente de meteorologie dinamică,* Institutul de Meteorologie şi Hidrologie, Bucureşti. Bondar C., Rovența V. (1967), *Curenții din lungul litoralului românesc al Mării Negre şi influența lor asupra stratificației maselor de apă,* Studii de hidrologie, XIX, Bucureşti. Brătianu Gh. (1988), *Marea Neagră,* Editura Meridiane, Bucureşti. Degens T.E., Ross D.A.A. (1974), *The Black Sea – Geology, Chemistry and Biology,* Memoirs the American Association of Petroleum Geologists, Tulsa, Oklahoma, U..A. Lericolais G., Bulois C., Gillet H., Guichard F. (2009), *High frequency sea level fluctuations recorded in the Black Sea since the LCM*, Global and Planetary Changes, 66, Elsevier. Oguz T., Aubrey D.G., Latun V.S., Demirov E., Koveshnikov L., Sur H.I., Diacanu V., Besiktepe S., Duman M., Limeburner R., Eremeev V. (1994), *Mesoscale circulation and thermohaline structure of the Black Sea observed during HydroBlack'91,* Deep-Sea Rsearch, I,41. Popescu I. (2002), *Analyse des processus sédimentaires récents dans l'éventail profond du Danube (mer Noire)*, Thèse de doctorat, Université de Bretagne Occidentale, Université de Bucarest. Romanescu Gh. (2005), *Morpho-hydrographical evolution of the Danube delta, Vol.II,* Editura Terra Nostra, Iaşi. Ross D.A. (1978), *Summary of results of Black Sea Drilling.* In: D.A.Ross, Y.P.Neprochov (Eds.), Initial Reports of the Deep Sea Drilling Project XLII, Part 2, Washington, USGovernment Printing Office. Ryan W.B.F., Pitman W.C., Major C.O., Shimkus K., Moskalenko V., Jones G.A., Dimitrov P., Gorur N., Sakinc M., Seyir H.Y (1997), *An abrupt drowning of the Black Sea shelf,* Marine Geology, 138..

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	HYDROLOGICAL DYNAMICS OF DELTAS AND ESTUARIES	CODE: JHM3607

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	6	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor GHEORGHE ROMANESCU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Knowledge of water – as a natural substance, the water forms in nature, their quantitative and qualitative characteristics, water distribution in the world, the relationships with the other components of the environment, and their importance for people. Location of the main deltas and estuaries. Understanding of the functioning mechanisms of the harbours in the deltas and estuaries.
COURSE CONTENTS	1. Estuary system - definition 2. Origin and occurrence conditions of the estuaries. Tides. 3. Hydrological dynamics of estuaries. 4. Chemistry of estuaries. 5. Mechanisms of sedimentation in the estuaries. 6. Types of estuaries. 7. Delta system. Definition. 8. Conditions favouring the appearance of deltas. 9. Delta formation. 10. Delta morphology. 11. Delta classification. 12. Delta planning and evolution.
PRACTICAL	1. Field work. 2. Written projects on the hydrotechnical planning of deltas and estuaries, with special emphasis on the Danube Delta.
TEACHING METHODS	Lecture, conversation, problematisation, heuristic conversation and description.

RECOMMENDED READING	Larras J. (1964), Embouchures, estuaires, lagunes et deltas, Eyrolles, Paris. Nichols M.M., Biggs R.B. (1985), Estuaries. In: Coastal sedimentary environments, 2nd edition, Edition R. A. Davis, Springer-Verlag, New York. Perillo G.M.E. (1996), Geomorphology and Sedimentology of estuaries: an introduction in Geomorphology and Sedimentology of estuaries, Edited by G.M.E. Perillo, Elsevier, Amsterdam. Romanescu Gh. (2002), Medii de sedimentare terestre şi acvatice. Delte şi estuare, Editura Glasul Bucovinei, Iaşi. Romanescu Gh. (2005), *Morpho-hydrographical evolution of the Danube Delta, II, Management of water resources and coastline evolution. Land use and the ecological consequences,* Editura TERRA NOSTRA, Iaşi, ISBN 973-8432-27-8. Smart J.S., Moruzzi V.L. (1972), Quantitative properties of delta channel network. Y. Geomorph. N.F., 16.3, Berlin.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	SYNOPTIC METEOROLOGY	CODE: JHM3608

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LUCIAN SFICA	Geography

PREREQUISITES	Meteorology and climatology

OBJECTIVES	Knowing the main characteristics of the general circulation of the atmosphere. Understanding the leading factors of temperate weather types. Depicting the role of air masses and atmospheric fronts in the development of weather types. Developing knowledge about the ways in which satellite images could be used in weather forecast. Information about how a weather forecast is made will also be acquired.
COURSE CONTENTS	I: Objectives of synoptic meteorology. History and importance of the field. II: General characteristics of atmospheric circulation with special emphasis on the temperate region. III: Characteristics and importance of jet currents in the development of synoptic processes. IV: Baric formations – engine of atmospheric circulation in the lower troposphere. V: Air masses. Origin, classification and characteristics. VI: Frontogenesis and frontolisis. Characteristics of frontal surfaces. Types of fronts. VII: Stability and instability in the troposphere. VIII: Synoptic processes generated by local characteristics of the terrestrial surface. IX: The role of climatic tele-connexions in the development of synoptic processes. X: Notions of satellite meteorology. Meteorological satellites. XI: Synoptic interpretation of satellite images. XII: Weather prognosis – generalities. Numeric prognosis. Prognosis models. XIII: Applicability of weather forecasting activities.
PRACTICAL	General organization: Week I: Sources of data used in weather forecasting. Week II: Synoptic code - I. Week III: Synoptic code – II. Week IV: Synoptic code, comprehension and evaluation – test. Week V: Radio probing. Types of diagrams and their characteristics. Week VI: Instability indices. Their role in meteorological forecasting. Week VII: Instability – case study. Project presentation. Week VIII: Interpretation of RADAR and meteorological satellites images. Week IX: Creating synoptic maps. Week X: Creating synoptic maps II. Week XI: Different types of synoptic maps (soil, 700 hPa, 850 hPa, 500 hPa, 200 hPa). Week XII: Integrate interpretation of synoptic maps. Week XIII: Conceiving, formulating and writing weather forecasts. Week XIV: Elaboration and presentation of a meteorological forecast.
TEACHING METHODS	Lectures, debates, modelling, problem solving

RECOMMENDED READING	Drăghici, I. (1988), *Dinamica atmosferei*, Edit. Tehnică, Bucureşti. Bluestein, H. (1992), Synoptic-dynamic meteorology in midlatitudes, Oxford University Press. Manfred, K. (1998), *Synoptic meteorology*, Deutscher Wetterdienst, Offenbach am Main. Marin, J-L. (2002), *Le grand livre des cyclones et tempêtes tropicales*, Orphie, Paris. Stahler, A. N. (1975), *Geografia fizică,* (cap. 4- 17), Edit. Şt., Bucureşti. Pettersen, Sverre (1969), *Introduction to meteorology*, McGraw-Hill, Book Company, New York

ASSESSMENT METHODS	Conditions	Attendance of practical classes
	Criteria	Active participation to practical activities
	Way of evaluation	Written and oral examination
	Formula of the final mark	15% test evaluation, 15% project presentation, 20% conducting and presenting a weather prognosis, 25% partial evaluation, 25% final evaluation

Anexa I

COURSE TITLE	MEASUREMENTS AND CALCULATIONS IN METEOROLOGY AND CLIMATOLOGY	CODE: JHM3610

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LUCIAN SFICA	Geography

PREREQUISITES	Meteorology and climatology

OBJECTIVES	Detailing some research methods used in meteorology and climatology; introducing new notions, specific to the respective research domains; initiating students in processing meteorology and climatology data through quantitative methods with statistical and mathematical bases; familiarizing them with the basic stages of the research in the field, mainly for using them in elaborating diploma or scientific papers.
COURSE CONTENTS	I: Data sources in meteorology and climatology. II: Methodology for conducting observations at meteorological stations. III: Methodology for conducting observations through radio probes and meteorological satellites. IV: Spatial representativeness of the meteorological network. V: Primary processing, table entries and meteorological annals. VI: Data sources for conducting climatic studies in Romania. VII: Statistics – basic notions. VIII: Descriptive statistics applied in climatology. IX: Probability studies in climatology. X: Climatic indices. XI: Basic principles of regression analysis. XII: Analysis of time series. XIII: Micro-climatic data processing.
PRACTICAL	General organization: Week I: Presenting sources of meteorological data. Week II: Ordering meteorological data bases - I. Week III: Homogenization and elongation of observation series. Week IV: Data processing and graphical representations regarding temperature. Week V: Data processing and graphical representations regarding humidity. Week VI: Data processing and graphical representations regarding nebulosity. Week VII: Project presentation. Week VIII: Processing data regarding atmospheric rainfall. Week IX: Processing data regarding atmospheric phenomena. Week X: Calculation of climatic indices. Week XI: Calculation of vertical and horizontal gradients. Week XII: Elaboration of maps for different climatic elements. Week XIII: Elaboration of synthesis climatic maps. Week XIV: Evaluation of final activities.
TEACHING METHODS	Lectures, debates, modelling, problem solving

RECOMMENDED READING	Apetrei, M., Groza,O., Grasland,C. (1996), *Elemente de statistică – cu aplicații în geografie*, curs, Univ. „A.I.Cuza" Iaşi Arléry, R., Grisollet, H., Guilmet, B. (1973), *Climatologie. Méthodes et pratiques,* Gauthier-Villars, Paris. Ciulache, S. (1973), *Meteorologie. Manual practic*, Univ. Bucureşti. Dumitrescu, Elena (1972) , *Metodica prelucrării datelor climatologice*, CMU, Bucureşti. Erhan, Elena (1999), *Lucrări practice de meteorologie şi climatologie,* ED.Univ. ,,Al. I. Cuza", Iasi.

ASSESSMENT METHODS	Conditions	Attendance of practical classes
	Criteria	Active participation to practical activities
	Way of evaluation	Written and oral examination
	Formula of the final mark	25% project, 30% weakly evaluation, 25% partial evaluation, 20% final evaluation

THE FIELD OF ENVIRONMENTAL SCIENCE

Speciality ENVIRONMENTAL GEOGRAPHY

Anexa I

COURSE TITLE	BIOLOGY (BOTANY, ZOOLOGY AND ECOLOGY TOPICS)	CODE: JM1104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		4		78	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LILIANA-GABRIELA ANIȚEI, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources.

OBJECTIVES	Acquiring the theoretical knowledge about the life of plants and animals, their ecology, nomenclature, taxonomy and local and global distribution. Acquiring knowledge about nature preservation in Romania, the biodiversity and the structure of terrestrial and aquatic biomes, ecological reconstruction and potential biotic preservation.
COURSE CONTENTS	Systemic organization of life. General morphology and structure of plants and animals. Plant taxonomy and ecology *(*general characteristics, classification, distribution and evolution). Animal taxonomy and ecology (general characteristics, classification, distribution and evolution).
PRACTICAL	Taxonomy and ecological characterization of *Procariobyonta* and *Phycobionta.* Taxonomy and ecological characterization of *Mycobionta* and *Bryobionta.* Taxonomy and ecological characterization of *Cormobionta-Pteridoplyta.* Taxonomy and ecological characterization of *Pinophyta (Gimnospermatophyta).* Taxonomy and ecological characterization of *Magnoliophyta (Angiospermatophyta).* Taxonomy and ecological characterization of Nevertebrata. Taxonomy and ecological characterization of Vertebrata. Applications and practical exemplifications of ecosystem, biotope and biocenosis
TEACHING METHODS	Lectures, practical works (in the laboratory and on the field)

RECOMMENDED READING	1. Mititelu, D., 1979 – Botanică sistematică, curs, Ed. Univ. „Al.I.Cuza" Iaşi. 2. Mititelu, D., 1980 – Flora tropicală şi subtropicală, curs, Ed. Univ. „Al.I.Cuza" Iaşi. 3. Ştefan, N., Oprea, A., Lupaşcu, A., Mânzu, C., 2001 – Botanică generală, curs, Univ. „Al.I.Cuza" Iaşi. 4. Gache, C., 2002 – Biologie animală, curs, Ed.Univ. „Al.I.Cuza" Iaşi. 5. Mustață, G., Mustață, M., Costică, M., 2004 – Regnurile lumii vii, Ed.Venus, Iaşi. 6. Chifu, T., Mânzu, C., Zamfirescu, O., 2006 – Flora şi vegetația Moldovei, voll şi II, Ed. Univ. „Al.I.Cuza" Iaşi. 7.Ştefan, N., Oprea, A., 2008 – Botanică sistematică, Ed. Univ. „Al.I.Cuza" Iaşi.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	BASICS OF ENVIRONMENTAL CHEMISTRY	CODE: JM 1210

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	ASSOCIATE PROFESSOR IULIANA GAGRIELA BREABAN	Geography

PREREQUISITES	Hydrology, Climatology

OBJECTIVES	Learning basic principles useful in knowing the chemical behaviour and role of chemical compounds in the environment; knowing the structure and composition of key chemicals and chemical reactions; specific theoretical concepts and practical knowledge of the main chemical processes in the environment; knowing the sources of environmental pollution and the processes and reactions that control or influence the distribution and transfer of pollutants in the environment.
COURSE CONTENTS	Defining the basic concepts and principles of the concept of environment, types of reactions taking place in the environment, acid reactions - basic, oxidation-reduction reactions, reactions to precipitate formation, reactions with formation of complexes/Biogeochemical cycles, carbon cycle, nitrogen cycle, oxygen, phosphorus, iron, sulphur, etc/Basic knowledge of water chemistry/General characteristics of water, dynamics of chemical species in water, water chemical composition, relationship atmosphere - water, water conductivity, water hardness, buffering capacity of water, biogenic indicators, metals, physical and chemical transport by water area/Suspension, salts, sediment-water interface, nutrients in sediment redox interface processes, water pollution and major pollutants, inorganic pollutants, organic pollutants, radionuclide/Fundamentals of atmospheric chemistry, atmospheric structure, chemical and photochemical reactions in atmospheric photochemical processes, reactions of oxygen in the atmosphere, nitrogen reactions in the atmosphere, sulphur reactions in the atmosphere, carbon reactions in the atmosphere, VOC in the atmosphere, aerosols, radioactive emissions/Fundamentals of soil solution chemistry of soil organo-metallic complexes. Macro-elements and microelements in soil organic and inorganic pollutants/Principles and concepts of green chemistry, sustainable development and green chemistry.
PRACTICAL	Knowledge of safety equipment in chemistry lab work, experimental strategy applied in the chemical analysis of environmental factors: water, air and soil. Calculation and interpretation of experimental results/Disperse system and solution concepts. Studying ways of expressing concentrations of solutions. Making computing applications on dispersed systems and solutions/Determination of soil hydrolytic acidity/Determination of water hardness/Plotting a visible absorption spectrum. Defining parameters λ max, E max Determination of chlorophyll in plants Determination of digestible phosphorus content of soil/Determination of pH in different media and interpretation of results/Assessment of theoretical and practical knowledge
TEACHING METHODS	Lecture combined with discussion and case studies.

RECOMMENDED READING	G.C. Constantinescu (2002) - Environmental Chemistry - Hydrochemistry, Ed Uni-Press C-68 G.C. Constantinescu (2002) - Environmental Chemistry – Air-Chemistry, Ed Uni-Press C-68 Rodica Popescu (2000)- *Hidrogeochemistry, Publisher University of Bucharest* S. Mănescu, M. Cucu, M.L. Diaconescu (1994) – *Environmental Health Chemistry, Medical Publishing House,* S. Manahan (2000) – *Environmental Chemistry – Sixth Ed. CRC Press USA* Ian Williams (2001), *Environmental Chemistry* , *ed John Willey & Sons* Mioara Surpateanu, (1994) *Environmental Chemistry, Ed. Univ. Tehnice Iasi,* R.Cuciureanu (2001), *Chemistry and environmental hygiene and food-analysis methods*, Ed. Junimea G. Sposito,(1989) *The chemistry of soils, Oxford University Press* D. Stumbea (2000), Supergen alteration of rocks and minerals, *Ed. Univ. Al.I. Cuza, Iaşi*

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final a

Anexa I

COURSE TITLE	HUMAN GEOGRAPHY (POPULATION AND SETTLEMENTS)	CODE: JM2303

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		64	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor GEORGE TURCANASU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Knowledge of the main parameters of the population profile space (dynamics, distribution, structure and mobility) The basic characteristics of the evolution, structure and spatial dynamics of the settlement network Characteristics of the settlement system and its organization
COURSE CONTENTS	Week 1: Geography of population - essential component of human geography Week 2- 4: The theory of demographic transition. General and regional dynamics of the world population. Components of population dynamics Week 5: Distribution of world population. Factors that determine the distribution Week 6-7: Population structure (by age group, gender, racial, ethnic, linguistic, occupational) Week 8: Population mobility Week 9: Geography of settlements - a fundamental component of human geography. Definitions of urban and rural Week 10: Rural geography Week 11: Urban geography - the origin and evolution of the urban phenomenon. Generation of cities Week 12: The spatial situation of urban settlements Week 13-14: Urban centrality. Geographical position Week 15-16: Urban functions. Urban hierarchy. Settlement systems
PRACTICAL	Week 1: Thematic Mapping Philcarto - presentation. Week 2-3: Building a database and its testing Week 4-7: Cartographic representation aimed at demographic indicators (birth rate, mortality, the natural balance, migration etc..) and demographic structures Week 8: Practical work aimed at demonstrating the skills acquired by students in Population Geography Week 9: The geographical position of urban settlements Week 10-11: Mapping of urban areas (Thiessen polygons, spatial interaction models used in urban geography) Week 12: Mapping of urban systems Week 13: Dependent variable / independent variable - the practical work of quantitative geography Week 14: Indicators of the concentration of population (Lorenz-Gini) Week 15: Urban hierarchy (rank size relationship) Week 16: Practical work aimed at demonstrating the skills acquired by students in the Geography of settlements
TEACHING METHODS	Exposition, conversation, problematisation, heuristic conversation, description.

RECOMMENDED READING	GROZA O. (2003) – Bazele teoretice ale planificării teritoriale, Universitatea „Alexandru Ioan Cuza" Iaşi HALL P., PAIN K. (2006) - The Polycentric Metropolis, Eartscan, London-Sterling VA, Londra IANOŞ I. (1987) – Oraşele şi organizarea spaţiului geografic, Ed. Academiei, Bucureşti IANOŞ I., HUMEAU J.-B. (2000) - Teoria sistemelor de aşezări umane, Ed. Tehnică, Bucureşti MORICONI-EBRARD F. (1993), L'Urbanisation du Monde, Anthropos, Paris MORICONI-EBRARD F. (2000), De Babylone à Tokyo Les grande agglomération du Monde, OPHRIS, Paris MUMFORD L. (1961) – The city in history – its origins, its transformations and its prospects, New York MUNTELE I., IATU C. (2003) – Geografia turismului, Ed. Sedcom Libris, Iasi PUMAIN D., SAINT-JULIEN Th. (1995) – Atlas de France - L'espace des villes, Reclus – La Documentation française, Paris

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	GEOGRAPHY OF TEMPERATE AND COLD AREAS	CODE: JM2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DANIELA LARION, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Understanding the general and regional characteristics of the environment in the temperate and cold areas, understanding the zonality, the complex interactions among them and the way in which they have influenced the development of human activities; knowledge of the demographical and economic aspects of regional differences
COURSE CONTENTS	Location of the temperate and cold zones of the Earth. Glaciers, tundra, taiga. The Arctic Area Arctic Ocean (climatic, hydrologic characteristics, ocean floor landforms, biodiversity, resources, environmental problems) Land areas of the Arctic zone (Arctic Archipelago of Canada, Greenland, Arctic Scandinavia, Arctic Russia) Antarctica (Southern Ocean; Antarctica (landforms, climate, subglacial lakes, vegetation, fauna, human activities, environmental problems) Climatic and biogeographic characteristics of the temperate areas. European temperate zone American temperate zone South -Asian temperate zone Environmental problems in the temperate zone
PRACTICAL	Interpretation of special geographical maps (landforms, climate, hydrography, vegetation, population density, urbanism) Geographical video documentaries and slides on different topics – representative for each main geographical region of the temperate and cold zone. Projects on different environmental problems in the temperate and cold areas.
TEACHING METHODS	Lecture, problematisation, demonstration, interactive methods (PowerPoint presentations)

RECOMMENDED READING	1. Daniela Larion (2004) – *Geografia Americilor* (curs IDD) Universitatea Al.I.Cuza, Iaşi 2. Daniela Larion (2005) – *Geografia continentelor – Europa* , Editura Azimuth Iaşi 3. Pompei Cocean (2005) – *Geografia Europei*, Presa Universitară Clujeană, Cluj 4. Pompei Cocean (1991) – *America,* Presa Universitară Clujeană, Cluj 5. I.Hârjoaba et.al.(1982) - *Geografia continentelor - Europa*, E.D.P. Bucuresti. 6. Eugen Rusu (2003) - *Geografia continentelor – Asia*, Editura didactică şi pedagogică 7. Silviu Negut et.al. - *Statele lumii*, Bucuresti, 1995, 1998. 8. Silviu Negut et.al. (2003)– *Enciclopedia Americilor*, Editura Meronia, Bucuresti. 9. J.Bejeau-Garnier - *Images economiques du monde*, Paris, 1995-2007.

ASSESSMENT METHODS	Conditions	Compulsory attendance to practical work and written tests
	Criteria	Thorough acquisition of certain fundamental field concepts and abilities to locate different geographical elements on the map
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	GEOGRAPHY OF INTERTROPICAL AREAS	CODE: JM2305

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DANIELA LARION, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources.

OBJECTIVES	Understanding the general and regional characteristics of the environment in the intertropical areas, understanding the zonality, the complex interactions among them and the way in which they have influenced the development of human activities; knowledge of the regional differences in the demographical and economic aspects.
COURSE CONTENTS	Location of intertropical zones on the Earth. Potential of the physico-geographical conditions: Landforms Climate (characteristics, present changes, effect) Rivers and lakes (water – a problem in interpropical areas) Vegetation, fauna and soils (study case: Amazonian deforestation) Natural resources Population and human settlements (Overpopulation – India – study case) General characteristics of the economy (economic parameters, standard of living, income) Regional differences (South America, Africa, South-Eastern Asia) Environmental problems.
PRACTICAL	Interpretation of special geographical maps (landforms, climate, hydrography, vegetation, population density, urbanism) Geographical video documentaries and slides on different topics – representative for each geographical region of Europe. Projects on different environmental problems of the intertropical areas (deforestation, overpopulation and its effects, natural hazards)
TEACHING METHODS	Lecture, problematisation, demonstration, interactive methods (PowerPoint presentations)

RECOMMENDED READING	
	1. Daniela Larion (2004) – *Geografia Americilor* (curs IDD) Universitatea Al.I.Cuza, Iaşi 2. Pompei Cocean (1991) – *America,* Presa Universitară Clujeană, Cluj 3. Eugen Rusu (2003) - *Geografia continentelor – Asia*, Editura didactică şi pedagogică 4. Silviu Negut et.al. - *Statele lumii*, Bucuresti, 1995, 1998. 5. Silviu Negut et.al. (2003)– *Enciclopedia Americilor*, Editura Meronia, Bucuresti. 6. J.Beaujeau-Garnier - *Images economiques du monde*, Paris, 1995-2008.

ASSESSMENT METHODS		
	Conditions	Compulsory attendance to practical work and written tests
	Criteria	Thorough acquisition of certain fundamental field concepts and abilities to locate different geographical elements on the map
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	GEOGRAPHY OF NATURAL RESOURCES	CODE: JM2325

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MARINELA ISTRATE, PhD	Geography

PREREQUISITES	General (Physical and Human) geography.

OBJECTIVES	Marking out the main natural resources available to human society; their distribution, degree and modality of exploitation, as well as their consequences on the humanized geographical landscape.
COURSE CONTENTS	Emphasizing the role of natural resources in the evolution of human society and the necessity of using them rationally, according to the population's needs. Solar energy. Particularities. Economic exploitation of the solar energy. The resources of the atmosphere. The atmosphere – the source of gaseous raw materials. Wind energy and its economic exploitation. The resources of the hydrosphere. The resources of sweet water of the continents. Tidal energy. Wave energy. Energy of the maritime currents. Using the water resources in industry. The water supply of populated centres. The resources of hydrocarbures of the Globe. World petroleum policy and its implications. Resources of non-ferrous metallurgy. Policies of medium and long-term natural resource management. Climatic and environmental issues. Recent energetic policies.
PRACTICAL	The world in 8 regional assemblies – political-economic characteristics, types of resources, local economic organization. Energy forms and sources. Primary energy and secondary energy. The main measurements units. The rate of energetic independence of the main developed countries. Coal deposits. Hydro-energetic resources of the Globe. The policy of states in managing energy sources; states with excessive energetic sources and states with deficit of energy sources; the ratio of different electricity forms for large producers. Hydrosphere – source of mineral raw materials. Vegetal resources of the Globe. Fauna resources of the Globe.
TEACHING METHODS	Lecture, debate, modelling – issues. Lecture held with the help of the video-projector. Debate.

RECOMMENDED READING	Bacher P. (2000) - Quelle energie puor demain?, col.Convictions, Ed. Sciences, Paris. Gheorghe A.V., 1982 – Prezentul si viitorul energiei solare. Ed. Academiei, Bucuresti. Brown Lester (coord.) – 2000 - 2004 – Probleme globale ale omenirii, Ed. Tehnica, Bucuresti. Laroche J.C. (2006) - Le defi energetique. De lepuisement des ressources au developpement durable, Les Editions de Paris. Nierenberg, Danielle (coord), 2008 - Starea lumii (The Worldwatch Institute), Ed. tehnică, Buc. Preda, G (coord.), 2004 - Valorificarea resurselor naturale, International University Press, Buc. Primack Richard B., 2002 – Conservarea diversitatii biologice, Ed. Tehnica, Bucuresti. Ungureanu Al., 2000 – Geografia Resurselor Naturale, Univ. Alex.I.Cuza, Iasi

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points). Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts. Capacity of synthesising the acquired knowledge in a wider geographical context. Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work. Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

Anexa I

COURSE TITLE	LOCAL AND REGIONAL ANTHROPIC IMPACT UPON THE ENVIRONMENT	CODE: JM2408

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LUDOVIC-ŞTEFAN KOCSIS	Geography

PREREQUISITES	Hydrology, Meteorology, Pedology, Chemistry, Elements of Physics and Biophysics, Quality of the Environment and Population Health Problems

OBJECTIVES	Understanding the reciprocal links among the local, regional and global anthropic impacts. Knowing the major features of the anthropic impact in the region. Analysis of the evolution of anthropic impact in Romania, during historic time, during the first stages of industrialisation and urbanisation, during the communist period and in the present
COURSE CONTENTS	Anthropic modifications during historic time, during industrialisation and urbanisation and in the present in the Carpatho-Danubiano-Pontic region. Modifications in the use of land on the Romanian territory, during the communist regime and in the present. Local impact upon the atmospheric environment: pollution, pollutants with impact upon the amplification of the greenhouse effect, pollutants with negative effect on the ozone layer, acid rain, environment acidification, problems of cross-border pollution. Effects of hydrotechnical facilities (reservoirs, dykes, drainages). Evolution of the forest area. Extension of agricultural lands. Negative effects upon the soil, arising from inappropriate agricultural usage. Impact of urbanisation and industrialisation upon the environment in Romania
PRACTICAL	Using bibliography from the library and existing modern technology (including the Internet), the students will write an essay about certain types of anthropic impact upon the environment. Visits will be conducted to drinking water and wastewater treatment units and landfills. Representative multimedia materials about major environmental impact events will be presented.
TEACHING METHODS	Lecture: speech, problematisation; practical course, exemplification

RECOMMENDED READING	
	1.Chiras, D.D. (1985) – Environmental Science – A framework for decision making, The Benjamin/Cummings Publishing Co., Menlo Park, California 2. Pepper Ian L., Gerba Charles P., Brusseau Mark L. (editors) (1996) – Pollution Science, Academic Press, London 3. Raven, Peter H., Berg, Linda R. (1993) – Environment, third edition, Harcourt College Publishers, Philadelphia 4. Rosu Al., Ungureanu Irina (1977) - Geografia Mediului Inconjurator, Editura Didactica si Pedagogica – Bucuresti 5. Roberts, Neil (2002) – Schimbările majore ale mediului, editura „All Educational", Bucureşti 6. Ungureanu Irina (1984), Analiza si protectia mediului inconjurator – curs, Universitatea „Al. I. Cuza" Iasi, Facultatea de Biologie – Geografie - Geologie Catedra de Geografie 7. Ungureanu Irina (2005) – Geografia mediului, Edit. Univ. „Al.I.Cuza" Iaşi

ASSESSMENT METHODS		
	Conditions	Compulsory attendance to practical work and to study visits and finalisation of the essay
	Criteria	Thorough acquisition of fundamental impact concepts Capacity of synthesising the acquired knowledge in local and regional context Capacity of discussing and analyzing concrete local and regional impact situations
	Way of evaluation	Oral examination + essay assessment
	Formula of the final mark	(oral examination * 50 + essay assessment * 50)/100

Anexa I

COURSE TITLE	ENVIRONMENT POLLUTION AND SUSTAINABLE WASTE MANAGEMENT	CODE: JM3613

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant LUDOVIC-ŞTEFAN KOCSIS	Geography

PREREQUISITES	Hydrology, Meteorology, Pedology, Chemistry, Elements of Physics and Biophysics, Quality of the Environment and Population Health Problems

OBJECTIVES	Understanding the pollution phenomenon, starting with sources of pollution, fate and transport of pollutants in the environment, physical, chemical and biological processes that affect this behaviour, and continuing with mitigation measures and techniques, as well as remediation technologies. The pollution phenomenon is subject to a complex approach, with a detailed view on pollution and the behaviour of pollutants in the atmospheric environment, surface waters, soil and groundwater. In the same spirit, the waste problem and sustainable waste management are approached, starting with the classification of waste, current techniques of waste management, and concepts of remediation and conservation.
COURSE CONTENTS	Processes affecting the fate and transport of contaminants. 1.a. The extent of global pollution. 1.b. Abiotic characteristics of soil. 1.c. Physical processes affecting atmospheric pollution. 1.d. Biotic activity in soil and water. 1.e. Physical processes affecting contaminant fate and transport in soil and water. 1.f. Chemical processes affecting contaminant fate and transport in soil and water. 1.g. Biological processes affecting contaminant fate and transport. 2. Sources, extent and characteristics of pollution. 2.a. Atmospheric pollution. 2.b. Surface water pollution. 2.c. Agricultural fertilizers as a source of pollution. 2.d. Soil erosion as a source of pollution. 2.e. Animal waste. 2.f. Pesticides as a source of pollution. 2.g. Industrial sources of pollution. 2.h. Pathogens in the environment. 2.i. Municipal wastewater and drinking water treatment. 3. Waste. 3.a. Types of waste. 2.b. Landfills. 3.c. Wastewater. 3.d. Agricultural application of sludge. 3.e. Deep well injection. 3.f. Incineration and immobilisation. 3.g. Point-source discharge into open water. 3.h. Special waste. 4. Conservation and remediation. 4.a. Basic concepts. 4.b. Containment. 4.c. Removal. 4.d. In-situ Bioremediation. 4.e. In-situ chemical treatment
PRACTICAL	Using bibliography from the library and existing modern technology (including the Internet), the students will write and essay about certain types of anthropic impact upon the environment. Visits will be conducted to drinking water and wastewater treatment units and landfills. Representative multimedia materials about major environmental impact events will be presented.
TEACHING METHODS	Lecture: speech, problematisation; practical course, exemplification

RECOMMENDED READING	1. Pepper Ian L., Gerba Charles P., Brusseau Mark L. (editors) (1996) – *Pollution Science*, Academic Press, London 2. Raven, Peter H., Berg, Linda R. (1993) – *Environment, third edition*, Harcourt College Publishers, Philadelphia 3. Rosu Al., Ungureanu Irina (1977) - *Geografia Mediului Inconjurator,* Editura Didactica si Pedagogica – Bucuresti 4. Rougerie G., Beroutchachvili N. (1991) – *Geosystemes et Paysages Bilan et methodes*, Armand Colin Editeur, Paris 5. Rusu C. (1998) – *Fizica, chimia si biologia solului*, Editura Universitatii "Al. I. Cuza" Iasi 6. Ungureanu Irina (1984), *Analiza si protectia mediului inconjurator* – curs, Universitatea "Al. I. Cuza" Iasi, Facultatea de Biologie - Geografie - Geologie Catedra de Geografie 7. Vişan Sanda, Anghelescu Anca, Alpopi Cristina (2000) – *Mediul înconjurător. Poluare şi protecţie*, Editura Economică, Bucureşti

ASSESSMENT METHODS	Conditions	Compulsory attendance to practical work and to study visits and finalisantion of the essay
	Criteria	Thorough acquisition of fundamental impact concepts Capacity of synthesising the acquired knowledge in local and regional context Capacity of discussing and analyzing concrete local and regional impact situations
	Way of evaluation	Oral examination + essay assessment
	Formula of the final mark	(Oral examination * 50 + essay assessment * 50)/100

Anexa I

COURSE TITLE	ELEMENTS OF BIOCHEMISTRY	CODE: JM 2413

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2	2			56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor IULIANA GAGRIELA BREABAN, PhD	Geography

PREREQUISITES	Basics of Environmental chemistry

OBJECTIVES	1. Practical training in biochemistry laboratories and the formation of a solid theoretical base. 2. Knowing the chemical composition of plant bodies through physical-chemical and chemical methods of analysis. 3. Study of the biochemical substrate and of metabolic processes
COURSE CONTENTS	1. Introduction (definition, development of biochemistry as a science), the living matter (fundamental characteristics, chemical composition); 2. Carbohydrates (monocarbohydrates, oxides, chemical and biological properties); 3. Lipids (simple fats, complex lipids, chemical and biological properties); 4. Protides (natural amino acids, peptides, holoproteins, heteroproteins, chemical and biological properties); 5. Biocatalysts (enzymes, vitamins, hormones); 6. Nucleic acids (definition, classification, importance), components of nucleic acids, DNA and RNA structure. 7. Metabolism disorders (Anabolism disorders - photosynthesis, oligocarbohydrate biosynthesis, starch biosynthesis, catabolism disorders - glycolysis, Krebs cycle, fermentative degradation) 8. Lipid metabolism (anabolism of lipids - biosynthesis of glycerol, fatty acid biosynthesis, triglyceride biosynthesis, catabolism of lipids - glycerol catabolism, catabolism of fatty acids) 9. Protide metabolism (anabolism of protides - amino acid biosynthesis, protein biosynthesis, catabolism of protides - amino acid catabolism, protein catabolism) 10. Biochemical adaptation of plants to stress conditions: heat, water, toxicity deficiency.
PRACTICAL	1. Work safety instruction in the biochemistry laboratory, presentation of the laboratory 2. Analytical methods used in biochemistry, harvesting, conditioning and preservation of samples 3. Determination of moisture and ash plant material 4. Chemical determination of starch content 5. Determination of fat 6. Determination of gluten 7. Determination of vitamin C 8. Determination of chlorophyll 9. Evaluation. Final Discussions
TEACHING METHODS	Interactive: exposition + discussions, case studies

RECOMMENDED READING	
	1. A. L. Lehninger, Biochemistry, vol I and II, edit. Technique, Bucharest, 1987, 1992. 2. D. Cojocaru, Enzymology, edit. Wide, Iasi, 1997. 3. D. Cojocaru, Vitamins Biochemistry, edit. Wide, Iasi, 1998. 4. I. F. Dumitru, Biochemistry, Edit. Didactica si Peedagogica., 1980. 5. M. Devlin, Textbook of Biochemistry, John Willey and Sons, New York, 1986. 6. G. Drochioiu, I. Mangalagiu, I. Druță, General Biochemistry. Edit. Demiurg, Iasi, 2002. 7. E. Macovschi, Biostructure, edit. Acad Bucharest, 1968. 8. G. Zubay, Biochemistry, Addison-Wesley publ. Comp., 1983. 9. Artenie, V. G., Tanase Elvira - 1981, Practicum of general biochemistry, Ed Univ. "Al. I. Cuza "Iasi 10. Cojocaru, D.C. - 1997, Enzymology, Ed Gama, Iasi 11. Dumitru, IF - 1980, Practical work of Biochemistry, Ed it. Didactica si Pedagogica Bucharest 12. Nuta, Gh, Buşneag, C. - 1977, Biochemical investigations, Edit. Didactica si Pedagogica Bucharest

ASSESSMENT METHODS		
	Conditions	Attendance of practical work activities
	Criteria	Active participation to seminar activities
	Way of evaluation	Written assessment
	Formula of the final mark	Participation to seminars activities 50% Responses at the final examination 50%

Anexa I

COURSE TITLE	LIMNOLOGY	CODE: GM2025

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant IONUT MINEA, PhD	Geography

PREREQUISITES	General physical geography; Hydrology

OBJECTIVES	Knowledge and identification of some morphometrical and morphological characteristics of the lake units. Identification of the ways in which the water of these hydrological units can be used in economical purposes
COURSE CONTENTS	Concepts and definitions. General characteristics of lakes. Types of lakes according to the origin of the basin. The distribution of lakes in Romania and on the Globe. Morphometrical elements and water balance in lakes. Water dynamics in lakes. Thermal regime in lakes. The chemical properties of lake water. Natural ecosystems in lakes. The impact of human activities upon lake ecosystems. Water pollution in lakes. Sources of pollution. Impact. Rehabilitation
PRACTICAL	Morphometric elements of lakes – project (analysis of the morphometrical elements of one lake in Romania and on the Globe). Realisation of the bathymetric map of lakes. The chemical properties of lake water. Sources of pollution. Impact. Rehabilitation. Week II. Morphometrical elements of lakes. The problems of the lakes in Romania – genesis, pollution, colmation
TEACHING METHODS	Lecture and problematisation

RECOMMENDED READING	Agafiței Alina, Agafiței M., (2004) – *Aspecte privind impactul eutrofizării lacurilor de acumulare Ciric I, II, şi III din județul Iaşi asupra mediului înconjurător*, ICDPM, nr.1, Edit.Performantica, Iaşi. pag151-159. Ceauşescu, D., (1973) – *Tratarea statistică a datelor chimico-analitice*, Editura Tehnică, Bucureşti. Gâştescu P. (1971), *Lacurile din România – limnologie regională*, Edit. Academiei R.S.România, Bucureşti. Guilcher A. (1979), *Precis d'hydrologie (marine et continentale)*, Editions Masson, Paris. Hutchinson G.E. (1957), *A Treatise on Limnology*, Vol.I, Geography, Physics and Chemistry, Wiley, New York. Zavatti, I., Giurma I., (1982) – *Cercetări privind colmatarea unor lacuri de acumulare din bazinul hidrografic Bahlui*, Hidrotehnica, nr.27, 2, Bucureşti. pag.37-41.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

THE FIELD OF GEOLOGY

Speciality GEOCHEMISTRY

COURSE TITLE	PHYSICAL GEOLOGY	CODE: IG 1101, GC 1101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Viorel Ionesi, PhD	Geology

PREREQUISITES	Physical Geography; Physics (Secondary School)

OBJECTIVES	The introduction of the students into the complex study of the Earth, starting with the pre-geological stage and continuing with all internal and external geological processes which have generated effects over geologic time.
COURSE CONTENTS	1. Study methods in Physical Geology 2. Planet Earth and its position in the Universe 3. Inner structure and physical properties of the Earth 4. General structure of the crust and landscape of the Earth 5. Igneous phenomena 6. Seismic phenomena 7. Metamorphic processes 8. Plate Tectonics Theory 9. Geodynamic action of the Atmosphere 10. Geodynamic action of the Hydrosphere 11. Biosphere – geological agent 12. Diagenesis, alteration and geological ablation 13. Geological facies 14. Introduction to geochronology. Relative and absolute ages. General evolution of the Lithosphere over geologic time
PRACTICAL	The macroscopic identification of the common minerals and of igneous, metamorphic and sedimentary rocks. The use of the geological compass. Geological map and cross-section. The determination of an earthquake epicenter. Time and age in Geology.
TEACHING METHODS	Oral presentation, debates.

RECOMMENDED READING	Airinei St. (1982). Pământul ca planetă. Ed. Albatros, Bucureşti. Bleahu M. (1983, 1989). Tectonica globală, vol. I şi II, Ed. Şt. şi Encicl., Bucureşti. Grasu C. (1997). Geologie structurală. Ed. Tehnică, Bucureşti. Jeanreanud P., Simionescu T. (1982, 1985). Geologie generală. Unversitatea „Al. I. Cuza" Iaşi, vol. I, II, Iaşi Lăzărescu V. (1980). Geologie fizică. Ed. Tehnică, Bucureşti. Pomerol Ch., Renard M. (1995). Elements de Géologie, Paris. Olaru L., Ionesi V., Ţabără D. (2004, 2008). Geologie fizică. Ed. Univ. „Al. I. Cuza" Iaşi.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x D + 0.5 x E

COURSE TITLE	PHYSICS OF THE EARTH	CODE: GC 1102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan-Bogdan Hanu, PhD	Geology

PREREQUISITES	

OBJECTIVES	The purpose of this subject is to present the Earth's physical potential and the main physical properties of the geological masses that generate geophysical anomalies whose interpretation offers the possibility to represent the subsoil internal structure.
COURSE CONTENTS	Gravimetry. Newton's laws. Gravity field. Gravimetric standard measures. Measurement units. The constant of the universal gravity attraction. Geopotential and its physical meaning. Surface with equal potential and field lines. The variations of the gravimetrical measures. Gravimetric reductions. Normal gravity field and gravimetric anomaly. The Earth tides process. Isostasy and the isostatic balance. Geomagnetism. Geomagnetic field and its potential. Structure of the geomagnetic field. The variations of the geomagnetic field and its geographic distribution. Paleomagnetism. Processes used in magnetic metrology.
PRACTICAL	Rock and mineral density. Density determination methods. Density contrast. Physical and geological factors that determine density variation. Magnetic characteristics. Magnetic susceptibility and magnetization intensity. Magnetic parameters. The variation of the magnetic characteristics. Microphysical sources of mineral magnetism. Magnetic moments of the atoms. Types of magnetic anisotropy. Residual magnetization mechanisms. Reverse magnetization and the curve of the magnetic hysteresis.
TEACHING METHODS	Lecture with graphic presentation.

RECOMMENDED READING	Airinei, Şt. (1980). Radiografia geofizică a subsolului României, Editura Ştiinţifică şi Enciclopedică, Bucureşti. Airinei, Şt. (1982). Pământul ca planetă, Editura Albatros, Bucureşti. Fowler, C.M.R. (1993). The Solid Earth (an Introduction to Global Geophysics), Cambridge, University Press. Lupei, N. (1979). Dinamica terestră, Editura Albatros. Moțiu, A. (1987). Tratat elementar de Fizica Globului, Editura Dacia, Cluj Napoca. Socolescu, M. et al. (1975). Fizica şi structura scoarţei terestre din România, Editura Tehnică, Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of all course and laboratory obligations
	Criteria	Cumulative evaluation.
	Way of evaluation	Grid test.
	Formula of the final mark	0.50 course subjects + 0.40 practical subjects + 0.10 course attendance

COURSE TITLE	CHEMISTRY	CODE: GC 1103, IG 1103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Dumitru Bulgariu, PhD	Geology

PREREQUISITES	General Physics; Mathematics

OBJECTIVES	The assimilation and the understanding of fundamental notions of chemistry. The development of the ability to apply the principles and notions of chemistry in specific cases: the chemistry and geochemistry of chemical elements and their compounds; the dynamics of chemical processes; the experimental study of the composition and structure of chemical compounds. The development of the ability to work with laboratory equipment and the coordination and realization of chemical analyses.
COURSE CONTENTS	1. Fundamentals and principles of chemistry (Elemental particles. Atom and molecule structure. Chemical bonds. General properties of atoms and molecules). 2. Aggregation states (Solid. Liquid. Gas. Plasma). 3. Chemical processes (Topics on thermodynamic and kinetics. Chemical equilibrium. Acid-base reactions. Redox reactions. Precipitation reactions. Complexation reactions. Melting reactions. Reactions in solid phase). 4. The systematic chemistry of the elements (General obtaining methods. Chemical and physical properties. Compounds: obtaining, properties, applications). 5. Topics on organic chemistry and biochemistry (Hydrocarbons: alkanes and cycloalkanes, alkenes, alkines, aromatic hydrocarbons. Derivatives with simple functions. Derivatives with combined functions. Heterocycles. Organic substances in biological media: chemistry, biochemical functions, biosynthesis and biodegradation). 6. Elements of radiochemistry (Natural and artificial radioactivity. Isotopes. Applications)
PRACTICAL	1. Fundamental operations in the chemical laboratory (Mass and volume measurement. Filtration. Heating and drying. Solution preparation). 2. Determination of physical constants (Refractive index. Melting point. Partial molar volume. Solubility of solid substances. Atomic/molecular mass and chemical equivalent). 3. Establishing of the molecular structure using UV-VIS and IR adsorption spectra. 4. Acids and bases (Determination of acidity/basicity constants and of ionization degree from pH measurements). 5. Redox reactions (Determination of redox potential and establishing of oxidation/reduction power). 6. Determination of reaction rate and establishment of kinetic parameters.
TEACHING METHODS	Explanatory-reproductive (speech). Controlled teaching. Learning through discovery. Experimental-investigative (problematization, debate).

RECOMMENDED READING	Atkins P.W. (1993). Tratat de chimie fizică. Ed. Tehnică, Bucureşti. Lehninger A.L. (1989). Biochimie. Ed. Tehnică, Bucureşti. Marcu Gh. (1993). Chimia modernă a elementelor metalice. Ed. Tehnică, Bucureşti. Negoiu D. (1972). Tratat de chimie anorganică. Ed. Tehnică, Bucureşti. Nenițescu C.D. (1980). Chimie organică. Ed. Didactică şi Pedagogică, Bucureşti. Nenițescu C.D. (1985). Chimie generală. Ed. Didactică şi Pedagogică, Bucureşti. Shriver S.F. et al. (1998). Chimie anorganică. Ed. Tehnică, Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures + practical works)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + exam
	Formula of the final mark	0.70 x Exam + 0.30 x Practical works

COURSE TITLE	MINING TOPOGRAPHY	CODE: IG 1104, GC 1104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	D, E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Maricel Răileanu, PhD	Geology

PREREQUISITES	

OBJECTIVES	Knowledge of equipment and instruments used in mining topography, methods and work techniques. Setting out topographic profiles. Drawing of geological maps on topographic support.
COURSE CONTENTS	Introductory notions of map drawing and topography. The topographic map. The measurement of angles and distances. Planimetry. Altimetry. Topographic methods and the range of cartographical representations used in map drawing and in geological reports. Photogrammetry in geological research and in the mining activity. Topographic activities in mining basins.
PRACTICAL	Reading topographic maps. Proportion scale of plans and topographic maps. Knowledge of topographic instruments - practical applications. Topographic survey. Running topographic profiles on maps with level curves.
TEACHING METHODS	PowerPoint presentations of lectures.

RECOMMENDED READING	Băican, V. (1988). Cartografie, Topografie. Lucrări practice. Ed. Univ."Al.I. Cuza", Iaşi. Băican, V. (2001). Topografie. Ed. Univ."Al.I.Cuza", Iaşi. Neamțu, M. et al. (1982). Instrumente topografice şi geodezice. Ed.Tehn., Bucureşti. Sficlea, V., Baican, V. (1983). Topografie. Centr. Multiplic. al Univ."Al. I. Cuza", Iaşi.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (training and practical works)
	Criteria	Cumulative assessment
	Way of evaluation	preliminary examination + final written examination
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	GEOINFORMATICS	CODE: GC 1105

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
		3		42	108	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Dan Ştefanei	Geology

PREREQUISITES	Mathematics

OBJECTIVES	1. Gathering primary algorithms of operating systems. Hardware and software architecture. 2. Basic knowledge of spreadsheet-applications and databases.
COURSE CONTENTS	
PRACTICAL	1. Computer hardware architecture 2. Operating systems 3. Databases 4. File system management 5. Spreadsheet-applications 6. Interfaces 7. Regular shell commands in Linux
TEACHING METHODS	Explanations. Presentations.

RECOMMENDED READING	Acostăchioaie D. (2006). Utilizare Linux. Ed. Polirom, Iaşi. Acostăchioaie D. (2006). Administrarea şi configurarea sistemelor Linux. Ed. Polirom, Iaşi. Kraynak J. (2002). Microsoft Office XP. Zaharescu E. (2000). Sisteme de operare. Ed. Tehnica, Bucuresti.

ASSESSMENT METHODS	Conditions	Fulfilment of obligations during practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Mixed
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	ENGLISH 1	CODE: GC 1106

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	D	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English (Secondary school)

OBJECTIVES	By the end of the semester, - the students will have acquired a significant portion of the main notions of English morphology and syntax, as well as of the main vocabulary of the English language, through a revision of the knowledge acquired throughout high school, the teaching of new concepts and the creation of numerous opportunities for practising the latter - the students will have added to the words and phrases that form the main vocabulary of the English language words and phrases that belong to their field of interest, namely geology - the students will have become familiarised with aspects of British culture and civilisation
PRACTICAL	Morphology: the verb (finite and non-finite tenses; modal verbs; phrasal verbs); the noun (countable and uncountable nouns; the regular plural and some irregular plural forms of countable nouns; problems of agreement; expressing gender through lexical and grammatical means; means of expressing the Genitive case), determiners (articles: the definite article, the indefinite article, the "zero" article; pronominal adjectives: the demonstrative adjective, the possessive adjective, the interrogative adjective, the relative adjective, the indefinite adjective, the negative adjective), some pre-determiners and post-determiners, the numeral (cardinal numerals, ordinal numerals, collective numerals, fractional numerals, adverbial numerals) and the preposition (various nouns and the prepositions that follow or precede them; the difference between prepositions and adverbial particles) Syntax: the sequence of tenses; active voice / passive voice; direct speech / Indirect speech; affirmative sentences / negative sentences / interrogative sentences The texts used as starting-points for revision and the teaching of new concepts deal with the following topics: *the notion of identity, motivations, ideals, plans for the future / family, pets, the notion of "home" / friends, human relations, feelings and attitudes / appearance (physical traits, clothing, footwear), personal health (diet, life-style) / personality traits, likes and dislikes, hobbies / daily routine, habits, changes that disrupt the daily routine / holidays, special occasions (parties, birthdays, anniversaries) / tragic or amusing events / elements of British culture and civilisation* Oral communication: simulating instances of communication that the students would encounter in real life (e.g.: *a conversation during dinner, deciding upon the way in which a family celebration should take place, relating an incident that took place during a geology camp, socializing while at a party etc.)*/a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *one's family as a source of unconditional support versus one's friends as a source of unconditional support, being oneself versus trying to appear as someone that one is not, extreme hobbies (bungee jumping, sky diving etc.) versus a less dynamic life-style etc.* Written communication: practising the shift from informal English to formal English and vice versa, the description of a person / an object / a place; the brief narration of an event
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	
	Gălăţeanu-Fâmoagă, G., Comişel, E., *Gramatica limbii engleze pentru uz şcolar*, Editura Omegapress, Bucureşti, 1993 Lăcătuşu, T., *Essentials of English Syntax. Complex Structures*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Student's Book, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004 Vereş, G., Cehan, A., Andriescu, I., *A Dictionary of English Grammar*, Editura Polirom, Iaşi, 1998

ASSESSMENT METHODS	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	CRYSTALLOGRAPHY – OPTICAL MINERALOGY	CODE: GC 1201, IG 1204

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Teacher Maricel Răileanu, PhD (Crystallography) Assistant Teacher Dan Stumbea, PhD (Optical Mineralogy)	Geology

PREREQUISITES	Mathematics; Physical geology

OBJECTIVES	Knowledge of: 1. crystallographic systems and crystal forms; 2. optical classification of minerals; 3. polarization of light, velocity of light through minerals; 4. interaction of light with minerals
COURSE CONTENTS	Crystallography module: Crystal definition, basic laws of geometric crystallography. Introduction to symmetry operations, the crystal classes. Crystal morphology, crystal symmetry, crystallographic axes. Axial ratios, Weiss parameters, Miller indices. Crystal form, zones, crystal habit, 32 Crystal Classes. Crystallographic projections. Space Groups. Twins. Optical Mineralogy module: Properties of light; polarized light. Velocity of light through crystals. Interaction of light with minerals. Cleavage of minerals, twinning.
PRACTICAL	Crystallography module: Operations and symmetry elements of crystal models. Methods of research and description of crystal polyhedra. Crystallographic Axes and Introduction to Crystal forms. Description of the 32 crystal classes. Miller indices of crystal faces. Stereographic projection of crystal faces. Twins – laboratory models. Optical Mineralogy module: Mineral properties in plane polarized light (color, shape, cleavage). Mineral properties in crossed polarized light (refractive index and birefringence, isotropic/anisotropic minerals, uniaxial/biaxial minerals).
TEACHING METHODS	Lectures, debates. Video and overhead projector.

RECOMMENDED READING	Idriceanu, Tr. (1974). Cristalografie (2 volume). Universitatea “Al. I. Cuza" Iasi. Klein, C., Hurlbut, C., S (1993). Manual of Mineralogy (cap. 2, 3, 4). John Wiley & Sons Inc., New York, 681p. Macaleț, V (1996). Cristalografie şi Mineralogie. Ed. Didactică şi Pedagogică, R.A., Bucureşti. Petreuş, I. (1986). Cristalografie morfologică şi structurală. Vol.I, Inst. Politehnic „Gh.Asachi” din Iaşi, Facultatea de Mecanică. Putnis, A. (1993). Introduction to Mineral Sciences (cap. 1-7). Cambridge University Press, Cambridge, 457p.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional obligations (training and practical works)
	Criteria	Cumulative assessment
	Way of evaluation	Preliminary examination + final written examination
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	ANALYTICAL CHEMISTRY 1	CODE: GC 1202

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Traian Gavriloaiei, PhD	Geology

PREREQUISITES	General Chemistry

OBJECTIVES	- To understand the complexity of the chemical phenomena and of their applications in the laboratory activity. - To provide a background for the selection and usage of the most adequate method in the quantitative analysis of chemical compounds. - To introduce a range of techniques that are useful in analytical chemistry. - To develop some laboratory skills needed to solve practical aspects of analytical chemistry.
COURSE CONTENTS	1. Introduction. Principles and applications of chemical equilibria. 2. Analysis methods. Analytical reactions and reagents. 3. Errors in chemical analysis. 4. The basic approach to chemical equilibrium, electrolytic dissociation, chemical activity, ionic product, pH-scale. 5. Acid-base analytical equilibria (main acido-basic theories, calculating the pH of acid and base solutions, salt solutions, buffer solutions). 6. Titrimetry: principles of neutralization titrations (acid-base titration curves, errors, indicators, pH determination for buffer solutions).
PRACTICAL	1. Separation and identification of cations and anions 2. Applications of acido-basic titrimetry (standardization of NaOH, HCl, NH_4OH, mixture or test) 3. Applications of redox titrimetry (standardization of $KMnO_4$, Fe^{2+}+Fe^{3+}, mixture or test) 4. Applications of complexing titrimetry (standardization of C III solution, Ca^{2+}+Mg^{2+}, Fe^{3+}+Cr^{3+}, test) 5. Seminar and final situation.
TEACHING METHODS	Lectures, discussions, problematisation, learning through discovery

RECOMMENDED READING	Croitoru V., Constantinescu D.A. (1979). Aplicații şi probleme de chimie analitică, Ed. Tehnică, Bucureşti. Douglas A. Skoog et al. (2000). Analytical Chemistry, an introduction, 7th ed., Sauders College Publishing, 772 p. Harris D. (1998). Quantitative Chemical Analysis 5th ed., Longman Publishing Group, Londra, W.H. Freeman Co. Sârghie I. (1993). Titrimetrie, Ed. Inst. Politehnic, Iaşi, 372 p. Steven S. Z. (2004). Chemical Principles 5th ed., Houghton Mifflin College Division, 824 p.

ASSESSMENT METHODS	Conditions	Fulfilment of professional duties (lectures, practical works or seminars)
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	GEOSTATISTICS	CODE: GC 1203, IG 1201

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Laviniu Apostoae, PhD	Geology

PREREQUISITES	Physical Geology; Physics of the Earth; Geoinformatics

OBJECTIVES	The discipline offers the future specialists in the field of geosciences the opportunity of applying the principles and methods of geostatistics.
COURSE CONTENTS	Introduction: terminology, objectives, stages in estimating spatial structures. Elements of statistics: graphical representations, statistical parameters, normal and log-normal distribution, outlier, examples. Regionalized variables: moments, co-variance, variogramme, stationary and intrinsic hypothesis, examples. Variogram: proprieties, calculation of the variogram for different sampling networks, models, examples. Estimation: local and global estimation, kriging, cokriging, examples. Estimation errors.
PRACTICAL	Data sets from research and/or exploitation of some perimeters (ore deposits) will be processed by: 1. analysis: it will be checked if the data is proper for problems solving; 2. modelling: the data will be converted into mathematical models to which theoretical principles will be applied; 3. synthesis: the obtained results will be estimated.
TEACHING METHODS	Lecture; discussion

RECOMMENDED READING	Deutsch, C. V., Journel, A. G. (1998). GSLIB. Geostatistical Software Library and User's Guide. Second Edition. Oxford University Press. Goovaerts, P. (1997). Geostatistics for Natural Resources Evaluation. Oxford University Press. Isaaks, E. H., Srivastava, R. M. (1989). An Introduction to Applied Geostatistics. Oxford University Press. Reimann,C., Filzmoser,P., Garett,R. Dutter, R.(2008). Statistical Data Analysis Explained. Applied Environmental Statistic with R. Willey.

ASSESSMENT METHODS	Conditions	Fulfilment of all laboratory duties
	Criteria	The correctness of results obtained in taking over and interpreting field data
	Way of evaluation	The evaluation of students' knowledge is done both during the semester (continuous assessment) and at the end of the module (written examination)
	Formula of the final mark	0.30 laboratory activity + 0.35 continuous assessment + 0.35 examination

COURSE TITLE	PALAEONTOLOGY 1	CODE: IG 1203, GC 1204

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	16	72	78	5	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Paul Țibuleac, PhD	Geology

PREREQUISITES	

OBJECTIVES	Achievement of the background for further paleontological research through the examination of the body structure and morphological features of the main major taxa with fossil records. Developing skills in fossil determination by using an algorithm in the observation and depiction of the specimens of the laboratory collection. Encouragement of personal opinion through the debating of several controversial aspects regarding systematics, equivocal features etc. Encouragement of the capacity for synthesis through the comprising of the fossil taxa significance in the referred structural-tectonic unit and through the correlation of the strata from the different sedimentary basins using the fossil records.
COURSE CONTENTS	Introduction. Fossils and fossilization. Historical steps in the development of Palaeontology. Elements of taxonomy and nomenclature. Domain *Prokarya.* Kingdom *Bacteria.* Doamain *Eukarya.* Kingdom *Protista.* Phylum *Granuloreticulosa*. Class *Foraminiferea.* Phylum *Sarcomastigopora*: Class *Actinopoda. Protista incertae sedis – Calpionellidae.* Kingdoms *Chromista* and *Fungi.* Kingdom *Animalia:* Phylum *Porifera*; *Archaeocyatha.* Phylum *Cnidaria*. Phylum *Mollusca*: Introduction. Subphylum *Amphineura* Subphylum *Cyrtosoma*: Class *Gastropoda.* Class *Cephalopoda*: Subclasses *Endoceratoidea, Actinoceratoidea, Bactritoidea.* Subclass *Nautiloidea.* Subclass *Ammonoidea*. Subclass *Coleoidea* (Orders *Aulacocerida*, *Belemnitida*). Each major taxa is described using the following topics: general features of the living body; reproduction; morphology of the hard parts; the skeleton of the colonies (in the specific taxa); the internal and external sculpture; the structure and the chemical composition of the hard parts; elements of morphometry; systematics; evolution and biostratigraphical value; phylogenetical aspects; paleoecological significance; specific methods of research; the most important researchers of the referred taxon; publications.
PRACTICAL	The laboratory classes follow the illustration of the major taxa exposed in the lectures; this goal is possible using the reach collection of fossils and recent specimens which is held in the laboratory. There are exercises dealing with the depiction and determination of the fossil records at the genus level. Also, several applications on morphometrical study, and two fieldtrips complete the practical class. The students can present an essay with additional data on the topics which were debated in the lectures or laboratories. Lp. 1-2 – Fossils and fosilization. Lp. 3-4 -Phylum *Granuloreticulosa*: Class *Foraminiferea.* Lp. 5 Phylum *Sarcomastigopora* - Subclss *Radiolaria. Protista-incertae sedis – Calpionellidae.* Lp. 6 Phylum *Porifera.* Lp. 7-8 Phylum *Cnidaria.* Lp. 9-10 Phylum *Mollusca* Subphylum *Cyrtosoma*: Class *Gastropoda.* Lp. 11-12-13 Class *Cephalopoda* - Subclasses *Actinoceratoidea, Nautiloidea, Ammonoidea,* aptyhi Lp. 14 - *Coleoidea.*
TEACHING METHODS	Lectures, lecture-debates, applications on complementary material. Specific field studies; following the patterns of the paleontological papers. Using questions and answers in controversial issues.

RECOMMENDED READING	Bucur I.I., Filipescu S., (1999). Micropaleontologia foraminiferelor. Ed. Presa Universitară Clujeană, Cluj-Napoca. Hanganu Elisabeta, Şuraru N., Griogorescu D. (1986). Paleontologie, Ed. Did- şi Ped. Bucureşti. Neagu Th., Lazăr Iuliana, Cârnaru P., (2002, 2003). Paleozoologia nevertebratelor. Vol. I, II, Ed. Univ. Bucureşti. Turculeț I., (1996). Dicționar de paleontologie. Univ. Iaşi. Țibuleac P. (2005). Paleontologia nevertebratelor. Sistematică – ghid practic. Volumul I. Ed. Tehnopress, Iaşi. Țibuleac P. (2006). Paleontologie. Volumul I. Ed. Tehnopress, Iaşi.

ASSESSMENT METHODS		
	Conditions	Compulsory attendance of the laboratory classes; passing the practical test at the end of the semester.
	Criteria	- Ability to depicting the fossil specimens of the major taxa from the laboratory collection; the same exercise on several specimens at first sight; ability to observe similarities and differences between the fossil records of the major taxa; - Capacity of using the fossil significance in the referred structural-geological unit; capacity of strata correlation in the same area or between different sedimentary basins (using the fossil records)
	Way of evaluation	Written or oral examination.

	Formula of the final mark	0.3 mark received for the practical test + 0.7 marks received for the exams

COURSE TITLE	GEOLOGICAL FIELD WORK	CODE: GC 1205

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
			4	56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Dan Ştefanei	Geology

PREREQUISITES	Physical Geology; Mining Topography; Crystallography; Palaeontology

OBJECTIVES	Initiating students into the practical activities of a geochemical engineer in primary field investigation.
COURSE CONTENTS	Consolidation of theoretical knowledge and practical skills acquired during the courses and practical work carried out during the first semester of study.
PRACTICAL	During the field trip the following will be emphasised: - field orientation using the compass (pinpointing of miscellaneous points on the topographic map); - gathering geological data and interpreting it; - sample drawing and preserving; - visits to mines, geological reservations.
TEACHING METHODS	Pertinent explanations will be given according to the geological or geochemical objective (mine, outcrop).

RECOMMENDED READING	Airinei Şt., Bercia I., Florea N., Gurău A., Mamulea A. M., Pricăjan A. (1961). Practica geologică, vol II, Ed. Tehnică, Bucureşti. Grasu C. (1997). Geologie structurală. Ed. Tehnică, Bucureşti. Pană Ioana, Orbocea Marioara, Grigorescu D. (1986). Practica stratigrafică. Universitatea din Bucureşti. Stoica C., Manilici V., Filipescu M., Corbu Mariana (1960). Practica geologică. Vol. I, Ed. Tehnică, Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of obligations during the practical geology traineeship
	Criteria	Cumulative evaluation
	Way of evaluation	Throughout the traineeship, exam
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	ENGLISH 1	CODE: GC 1206

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	P	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English (Secondary School)

OBJECTIVES	By the end of the semester, - the students will have revised the syllabus of the first semester and will have acquired further notions of English morphology and syntax - the students will have added new words and phrases both to the main vocabulary of the English language, and to the specialized vocabulary used in their field of interest, namely geology - the students will have become familiarized with aspects of American culture and civilization
PRACTICAL	Morphology: the adjective (the comparative degree and the superlative degree of adjectives; the position occupied by adjectives in relation to nouns; adjectives followed by prepositions; deriving adjectives from nouns), the adverb (the comparative degree and the superlative degree of adverbs; types of adverbs and the position they occupy within the sentence; deriving adverbs from adjectives), the pronoun (the personal pronoun, the demonstrative pronoun, the possessive pronoun, the reflexive pronoun, the reciprocal pronoun, the indefinite pronoun, the relative pronoun, the emphatic pronoun) and the conjunction (coordinating and subordinating conjunctions) Syntax: "if" clauses; relative clauses; "wish" clauses; clauses with causative "have" and causative "get" The texts used as starting-points for revision and the teaching of new concepts deal with the following topics: *spending one's spare time (sports, outdoor activities, indoor activities, socializing) / holidays, vacations, trips / culture (books, music, exhibitions, the theatre, the cinema), celebrities (the road to fame, the price of success, celebrities as role-models) / the media (newspapers, magazines, television, the radio, computers and the Internet), the role played by advertising / the seasons, weather, the environment (animals, nature, pollution and its harmful effects, the importance of an eco-friendly attitude and its manifestations) / one's studies and career / elements of Canadian culture and civilisation* Oral communication: simulating instances of communication that the students would encounter in real life (e.g.: *asking for information while on a trip abroad, deciding upon the destination of a family vacation, being interviewed for a job, being interviewed for a scholarship at a prestigious university abroad etc.)* a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *career versus personal life, fame versus anonymity, books versus computers, studying at a Romanian university versus studying abroad, the harmful effects of deforestation versus its economic benefits, sedentary spare-time activities versus dynamic spare-time activities, circuses-a source of amusement or a site for cruelty? etc.* Written communication: writing one's CV and a letter of application with the purpose of obtaining a job in the field of geology in the future
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	
	Gălăţeanu-Fâmoagă, G., Comişel, E., *Gramatica limbii engleze pentru uz şcolar*, Editura Omegapress, Bucureşti, 1993 Lăcătuşu, T., *Essentials of English Syntax. Complex Structures*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Student's Book, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004 Vereş, G., Cehan, A., Andriescu, I., *A Dictionary of English Grammar*, Editura Polirom, Iaşi, 1998

ASSESSMENT METHODS	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	MINERALOGY	CODE: IG 2301, GC 2301

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Nicolae Buzgar, PhD	Geology

PREREQUISITES	Crystallography - Optical Mineralogy

OBJECTIVES	To discuss the rock forming minerals, their properties, genesis and occurrences.
COURSE CONTENTS	Native elements. Oxides and hydroxides. Sulphides. Sulphates. Carbonates. Phosphates. Halides. Silicates
PRACTICAL	Study of the most important properties of rock forming minerals (in hand specimens and thin sections).
TEACHING METHODS	Lectures based on overhead-projector projections, debates, problematisation, independent research.

RECOMMENDED READING	Deer W. A., Howie R. A., Zussman J. (1992). An introduction to the rock – forming minerals, 2nd edition. Longman Scientific and Technical, London, 696p. Fleischer M., Wilcox R. E., Matzko J. J. (1984). Microscopic Determination of the Nonopaque Minerals. U. S. Geol. Survey Bull., 1627, Washington, 453p. Hibbard M. J. (2002). Mineralogy. A Geologist's Point of View. Wiley, New York, 562p. Ianovici V., Ştiopol Victoria, Constantinescu E. (1979). Mineralogie. Ed. Did. Pedag., Bucureşti, 827 p. Mure an I., Benea M. (2000). Mineralogie sistematică. Partea I-a. Ed. ETA Cluj-Napoca. Mure an I., Benea M. (2001). Mineralogie sistematică. Silica i naturali. Partea a II-a. Ed. Casa Căr ii de tiin ă, Cluj-Napoca. Nesse W. D. (2000). Introduction to Mineralogy. Oxford Univ. Press, New York, 442p. Wenk H. R., Bulakh A. (2004). Minerals. Their constitution and origin. Cambridge University Press, 646 p. Magazines: American Mineralogist, Canadian Mineralogist, Mineralogy and Petrology Websites: www.webmineral.com

ASSESSMENT METHODS	Conditions	Active participation to lectures and practical works
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests
	Formula of the final mark	50% D + 50% E

COURSE TITLE	ANALYTICAL CHEMISTRY 2	CODE: GC 2302

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Traian Gavriloaiei, PhD	Geology

PREREQUISITES	General Chemistry; Analytical Chemistry 1

OBJECTIVES	- To understand the complexity of the chemical phenomena and of their applications in laboratory practice. - To provide a background for the selection and usage of the most adequate method in the quantitative analysis of chemical compounds. - To introduce a range of techniques useful in analytical chemistry. - To develop some laboratory skills needed to solve practical aspects of analytical chemistry
COURSE CONTENTS	1. Analytical equilibrium with transfer of electrons (redox potential, equilibrium constant, balancing redox equations, competitive equilibrium, diagrams). 2. Titrimetry: principles of redox titrations (titration curves, errors, indicators, applications: permanganometry, iodometry). 3. Analytical equilibrium with complexing agents (types of complexing combinations, ligands, stability of complex combinations, diagrams). 4. Applications: complexometric titrations (titration curves, errors, indicators, applications). 5. Analytical equilibrium of precipitation (solubility, solubility product, stability factors, competitive equilibrium). 6. Applications: principles of precipitation titrimetry (titration curves, errors, indicators, applications). 7. Gravimetric analysis, types of precipitation. Colloidal state.
PRACTICAL	1. Basic operations in gravimetry. 2. Quantitative determinations of cations as oxides. 3. Quantitative determinations of cations as sulphates. 4. Quantitative determinations of cations as pyrophosphates. 5. Quantitative determinations of cations with oxalates. 6. Quantitative determinations of cations with organic reagents. 7. Interpretations of results.
TEACHING METHODS	Lectures, discussions, problematisation, learning through discovery

RECOMMENDED READING	Croitoru V., Constantinescu D.A. (1979). Aplicaţii şi probleme de chimie analitică, Ed. Tehnică, Bucureşti. Douglas A. Skoog et al. (2000). Analytical Chemistry, an introduction, 7th ed., Sauders College Publishing, 772 p. Harris D. (1998). Quantitative Chemical Analysis 5th ed., Longman Publishing Group, Londra, W.H. Freeman Co. Sârghie I. (1993). Titrimetrie, Ed. Inst. Politehnic, Iaşi, 372 p. Steven S. Z. (2004). Chemical Principles 5th ed., Houghton Mifflin College Division, 824 p.

ASSESSMENT METHODS	Conditions	Fulfilment of professional duties (courses, practical works or seminars)
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	PLANETARY GEOLOGY	CODE: GC 2303, IG 2303

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Gabriel Ovidiu Iancu, PhD (L) Junior Teaching Assistant Iuliana Buliga (P)	Geology

PREREQUISITES	Physics of the Earth

OBJECTIVES	Knowledge of the main geological features of the planetary surfaces (terrestrial planets, satellites)
COURSE CONTENTS	1. Definitions, History, Ideas concerning the position of the planets in the Universe, Evolution of the Universe, Planetary probes – historical missions; 2. The Sun: composition, location, size, nuclear fusion from the core, radiative zone, convection zone, photospere, chromosphere, corona, solar wind; 3. The planet Mercury (geological features and its importance in the theories concerning the formation of the planets) 4. The planet Venus (geological processes, landforms, chemical composition of the soil, volcanism on Venus) 5. The planet Earth (Plate Tectonic theory, main geological processes) 6. Meteorites (classification, mineralogical composition), Impact craters 7. The moon (geological processes, landforms, chemical composition of lunar rocks, lunar meteorites) 8. The planet Mars (geological processes, volcanism on Mars, chemical composition of the soil, Martian meteorites) 9. The planet Jupiter (the interior of Jupiter, magnetosphere, geology of satellites – Callisto, Europa, Ganymede, Io and Amalthea); Comets (the collision of comet Shoemaker Levy 9 with Jupiter) 10. The planet Saturn (structure, the Saturnian ring system, geology of satellites – Titan, Mimas, Enceladus, Tethys, Dione, Rhea and Yapetus) 11. The planet Uranus (structure, geology of satellites – Miranda, Ariel, Umbriel, Titania and Oberon) 12. The planet Neptune (structure, details on the geology of Triton), Pluto, Asteroids
PRACTICAL	Details about Plate Tectonics, Geological processes and landforms on Earth, Volcanism in the Solar System, Terrestrial rocks – general terms, The analyses and classification of extraterrestrial rocks (meteorites, lunar rocks), Geological maps, Satellite images, Comparative geology of the terrestrial planets
TEACHING METHODS	Lectures based on video projections, debates

RECOMMENDED READING	Airinei Şt. (1982). Pământul ca planetă. Ed. Albatros, Bucureşti, 376 p.; Hawking S. (2004). Universul într-o coajă de nucă, Ed. Humanitas, 211 p.; McSween H.Y. jr. (1993). Stardust to Planets - A Geological Tour of the Universe, St. Martins'Griffin, New York, 241 p.; McSween H.Y. jr. (2001). Partitură pentru Terra, originile planetei şi ale vieţii, All Educational, 236 p.; Pasachoff J. M. (1998). Astronomy, From The Earth To The Universe, 643 p.; Seeds M. A. (2001). The Solar System (2nd edition), Brooks/Cole, 616 p.

ASSESSMENT METHODS	Conditions	Fulfilment of student duties during lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests and written exam
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	INSTRUMENTAL METHODS IN GEOSCIENCES	CODE: GC 2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Dumitru Bulgariu, PhD	Geology

PREREQUISITES	General Chemistry; Analytical chemistry; Mineralogy; Geochemistry

OBJECTIVES	The assimilation and the understanding of topics of instrumental chemistry in a practical context. The development of the ability to apply the notions of instrumental chemistry in specific cases: optimizing the instrumental methods and performing the chemical and structural analyses of geological samples (minerals, rocks, ores, soils). The development of skills in using laboratory equipments; coordination and development of skills in performing chemical analyses.
COURSE CONTENTS	1. Fundamentals of instrumental analysis (Evaluation of experimental errors and elimination of uncertain data. Etalonation of Apparatus and analysis methods). 2. Topics on separation analytical techniques. Separation and concentration methods (Principles. Separation through liquid-liquid extraction. Separation through sequential liquid-solid extraction. Separation through adsorption. Flotation. Methods of mineral separation). 3. Spectrochemical methods of analysis (Principles. Arc, flame and plasma atomic emission spectrometry. Atomic absorption spectrometry. UV-VIS molecular absorption spectrometry. IR and Raman molecular absorption spectrometry. Fluorescence and phosphorescence molecular spectrometry). 4. Electrochemical methods of analysis (Principles. pH-metry. Potentiometry. Amperometry. Conductometry. Polarography. Electrogravimetry. Electrophoresis. Impedance spectrometry). 5. Diffractometric methods of analysis (Principles. X-ray diffraction. Neutron diffraction). 6. Chromatographic methods (Principles. Gas, gas-liquid and gas-solid chromatography. Liquid chromatography: on a plane and in a column). 7. Thermal methods of analysis (Principles. Thermogravimetry. Differential thermal analysis). 8. RMN Spectrometry (Principles. Applications in geosciences). 9. Mass spectrometry (Principles. Applications in geosciences). 10. Radiometric methods (Principles. Analysis through reactivation. Analysis through isotopic dilution).
PRACTICAL	1. Separation and concentration methods (Separation by liquid-liquid extraction and ion exchange. Mineral separation with heavy liquids and through magnetic methods). 2. Analysis through atomic absorption and emission spectrometry (qualitative and quantitative). 3. Analysis through UV-VIS molecular absorption spectrometry (Lambert-Beer law). Direct and indirect spectrophotometrical analyses. Spectrophotometrical titration). 4. Analysis through IR and Raman molecular absorption spectrometry (Identification and analysis of minerals. Study of mineral structures. Study of adsorption processes at solid/liquid interface). 5. Analysis through electrochemical methods (pH and direct potentiometric analyses. pH and potentiometric titration. Conductometry). 6. The analysis of geochemical samples using X-ray diffraction (Identification and analysis of minerals). 7. Chromatographic analysis (on a plane and in a column). 8. Thermal analysis of geochemical samples (Identification and analysis of minerals)
TEACHING METHODS	Explicative-reproductive (speech). Controlled teaching. Learning through discovery. Experimental-investigative (problematisation, debate).

RECOMMENDED READING	
	Dăneț A.F. (1995). Metode instrumentale de analiză chimică. Ed. Ştiinţifică, Bucureşti. Dean A.J. (1995). Analytical Chemistry Handbook. McGraw-Hill, New York. Iorga N. (1981). Metode fizice de analiză a mineralelor şi rocilor. Univ. „Al.I.Cuza" Iaşi. Jercan E. (1983). Metode de separare în chimia analitică. Ed. Tehnică, Bucureşti. Popescu R. (1982). Metode fizico-chimice de analiză în geochimie. Univ. Bucureşti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional obligations (lectures + practical works)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + exam
	Formula of the final mark	0.70 E + 0.30 P

COURSE TITLE	ENGLISH 2	CODE: GC 2305

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	P	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English 1

OBJECTIVES	By the end of the semester, - the students will have revised the syllabus of the previous year of study, will have acquired further notions of English morphology and syntax and will have added new words and phrases both to the main vocabulary of the English language, and to the specialized vocabulary used in their field of interest, through a series of texts and exercises with a higher level of difficulty than those used during the previous year - the students will have become familiarized with aspects of Canadian culture and civilisation
PRACTICAL	Morphology: the verb, the noun (collective nouns, summation plurals, nouns derived from verbs, composed nouns, nouns obtained through conversion from other parts of speech, nouns obtained though abbreviation*), determiners, pre-determiners and post-determiners, the numeral (multiplicative numerals, distributive numerals*), the preposition, the adjective, the adverb, the pronoun and the conjunction *new notions Syntax: the sequence of tenses; active voice / passive voice; direct speech / Indirect speech; affirmative sentences / negative sentences / interrogative sentences; "if" clauses; relative clauses; "wish" clauses; clauses with causative "have" and causative "get" The texts used as starting-points for revision and the teaching of new concepts deal with the following topics: *human rights, democratic values, the notion of responsibility, the notion of justice / tolerance and intolerance (discrimination, racism, xenophobia, extremism, terrorism), prejudices and stereotypes / interpersonal conflicts, cultural clashes, armed conflicts, the struggle for peace* Oral communication: simulating instances of communication that the students would encounter in real life (e.g.: *witnessing and reacting to an instance of racist behaviour, being part of a trial as a defendant, defence lawyer, prosecutor, witness, member of the jury or judge* etc.) a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *the death penalty – acceptable or unacceptable?, difference – a source of diversity or of dissension?* etc.
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	Gălăţeanu-Fârnoagă, G., *Limba engleză în conversaţie*, Editura Stiinţifică şi Enciclopedică, Bucureşti, 2000 Hulban, H., *Syntheses in English Morphology,* Perspectives of the English Language Series, 2, Editura Spanda, Iaşi, 2001 Lăcătuşu, T., *The Simple Independent Sentence*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Workbook, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004

ASSESSMENT METHODS	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	SEISMIC AND VOLCANIC HAZARDS	CODE: GC 2306

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan-Bogdan Hanu, PhD – Earthquake hazards module Professor Ovidiu Gabriel Iancu, PhD – Volcanic hazards module	Geology

PREREQUISITES	Physics of the Earth

OBJECTIVES	Introduction to the problematic of seismic and volcanic processes.
COURSE CONTENTS	*Earthquake Hazards module* Types of earthquakes. Evaluation scale of seismic processes; Elastic waves and seismic range. Earth's speed structure. Earthquake focusing mechanisms; Earthquake recording. Practical applications for seismographs; The mechanisms of seismic movement transition upon constructions. Microseisms; Seismic spectres and their use in seismology. Seismic zonation and microzonation. Induced seismic process. The issue of earthquake prediction. *Volcanic Hazards module* Classification methods of volcanic activity; Volcanoes and the Plate Tectonics; The origin of magma, Compositional diversity of magmas; Magma types, Magma chamber, Volcanic edifice, Triggering of volcanic eruptions; Types of volcanic eruptions; Subaerial volcanic edifices (Primary: accumulation edifice, explosion edifice and Erosional); Lava eruptions: Lava flows, Lava domes, Intrusions, Lava lakes; Pyroclastic flows – tephra, agglomerates and volcanic breccias, tuffs; Pyrocastic flows (avalanches of rock fragments and ash, lahars, nuée ardente, ignimbrites); Pyrocastic surges; Subaerial volcanic products: Rocks (Solidified lavas, Pyroclastics), Glasses, Hydroterma phases, (Fumaroles, Solfataras, Geysers, Thermal springs), Gases; Submarine and subglacial volcanism; Global distribution of volcanoes; Volcano monitoring and research; Prediction of volcanic activity - hazards; The economic and cultural benefits of volcanoes.
PRACTICAL	*Earthquake Hazards module* Quality and quantity determination in earthquake analysis; The evaluation of the seismic effects upon constructions; *Volcanic Hazards module* Subaerial volcanic products: Solidified lavas – volcanic rocks; Minerals of volcanic rocks; Fabric of volcanic rocks; Geochemical features of volcanic rocks; Consolidated pyroclastics (agglomerates, tuffs), Unconsolidated pyroclastics – Tephra: Defining features of pyroclastic rocks. Separation criteria. Recognizing the resedimented pyroclastics. Volcaniclastic facieses, Volcanoclastic sedimentation. Most significant volcanic hazards
TEACHING METHODS	Lecture with graphic presentation or video-projections and debates.

RECOMMENDED READING	Bolt, A.B. (2003). Earthquakes, W. H. Freeman & Co., New York, 2003; Ifrim M. (1980). Analiza dinamică a structurilor şi ingineria seismică, Editura Didactică şi Pedagogică, Bucureşti; Posea G. (2001). Vulcanismul şi Relieful vulcanic, Ed. Fundației România de Mâine, Bucureşti, 216 p.; Rădulescu D. P. (1976). Vulcanii astăzi şi în trecutul geologic, Ed. Tehnică, Bucureşti, 269 p.; Sigurdsson H., Houghton B. F., McNutt S. R., Rymer H., Stix J. (2000). Encyclopedia of Volcanoes, Academic Press, San Diego California; Visarion M. et al. (1979). Geofizică inginerească, Editura Tehnică, Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of all student obligations at courses and laboratories.
	Criteria	Cumulative evaluation.
	Way of evaluation	Grid test.
	Formula of the final mark	0.50 P + 0.50 E

COURSE TITLE	PRECIOUS, SEMIPRECIOUS AND DECORATIVE STONES	CODE: GC 2307

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Ovidiu Gabriel Iancu, PhD (L) Teaching Assistant Oana Stan (P)	Geology

PREREQUISITES	Mineralogy

OBJECTIVES	To identify the genuine precious, semiprecious and decorative stones and to assess their value
COURSE CONTENTS	Modern gemmological classification of natural inorganic and organic substances, artificial and synthetic gem materials; The nomenclature of gems; Formation and structure of gems (crystal systems and shapes); Properties of gemstones: hardness, cleavage and fracture, specific gravity, weights used in the gem trade, optical properties (colour, colour of streak, colour change, refractive index, double refraction, dispersion, absorption spectra, transparency, lustre, pleochroism, light and colour effects, luminescence, inclusions, special effects), Analytical facilities used in the study of gems; Description of gemstones (Diamond, Sapphire, Ruby, Beryl-Emerald, Topaz, Quartz group, Turquoise, Jade, Amber, Natural and Cultured Pearls, Ivory, Coral); Imitations of gems; Identification of genuine and synthetic stone; Gem treatment; Grading and evaluation of coloured gems, Grading and evaluation of diamonds, Grading and evaluation of natural and cultured pearls; Decorative stones (sedimentary, magmatic and metamorphic stones); Gems and decorative stones in Romania
PRACTICAL	Gemmological Instruments: gemmological microscopes, refractometers (and associated light sources), spectroscopes (and associated light sources), weighing balances for the calculation of weight and specific gravity, and measuring devices for gauging the dimensions of gemstones, Chelsea Filter, U/V fluorescence unit, polariscopes, diamond tester, Raman, Electron Microprobe, XRD
TEACHING METHODS	Lectures based on video projections, debates

RECOMMENDED READING	Erhan V., Iancu O. G. (1996). Metale şi Pietre Prețioase, Ed. Univ. „Al. I. Cuza" Iaşi. Ionescu C. (2001). Expertiza gemologică, Ed. Presa Univeritară Clujeană, Cluj-Napoca. Matlins A. L., Bonanno A. C. (1994). Gem identification made easy. N. A. G. Press, London. O'Donoghue Michael (2006). Gems, Their Sources, Descriptions and Identification, Butterworth Heinemann/Elsevier. Schumann W. (1990). Gemstones of the world. Sterling Publishing Co. Inc, New York.

ASSESSMENT METHODS	Conditions	Fulfilment of student duties during lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests and written exam
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	WELLING GEOPHYSICS	CODE: GC 2308

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan-Bogdan Hanu, PhD	Geology

PREREQUISITES	Physics of the Earth

OBJECTIVES	The presentation of the complex processes and activities necessary for the obtaining and interpreting of the geophysical diagraphy necessary to determine the characteristics of the geological structures crossed by auger holes and the useful mineral content and profile correlation used for structural maps.
COURSE CONTENTS	Research area of welling geophysics. Electrical log. Specific electric resistivity of rocks and minerals. Causes of specific resistivity variations. Measurement of the specific resistivity of rocks in boreholes. Spontaneous potential and induced potential. Methods of electrical log of apparent resistivity. Interpretation of electrical diagraphies. Application field for the electrical log. Radioactive log. Physical and geological basics of radioactive log methods. The natural radioactivity of rocks. Induced radioactivity. Radioactive methods in boreholes investigations.
PRACTICAL	Classification of the recording devices for the specific apparent resistivity. Action of the welling mud upon the sheets crossed by boreholes. Determination of collector thickness. Determination of the specific resistivity of the washed and invaded zones, of the real resistivity and of the diameter of the invaded zone, according to the data from various electrical log methods. Determination of the clay content in collecting rocks. Determination of the formation porosity. Caliper log. Formation dip logging. Measurement of the oriented deviation of the wells Instrument orientation in conducted drillings.
TEACHING METHODS	Lecture with graphic presentations.

RECOMMENDED READING	Babskow, A. - chapter„Geofizica de sondă" from „Prospecțiuni geofizice", Editura Didactică şi Pedagogică, Bucureşti, 1980. Crânganu, Constantin – Investigarea geofizică a găurilor de sondă, Editura Universității „Al. I. Cuza" Iaşi, 1988. Crânganu, Constantin – Investigarea geofizică a găurilor de sondă (Caiet de lucrări practice), Editura Universității „Al. I. Cuza" Iaşi, 1992. Neguț, Aurelian – Geofizică de sondă, Editura Universității Bucureşti, 1987.

ASSESSMENT METHODS		
	Conditions	Fulfilment of all student obligations at the lectures and laboratories.
	Criteria	Cumulative evaluation.
	Way of evaluation	Grid test.
	Formula of the final mark	0.50 course subjects + 0.30 practical subjects + 0.20 project

COURSE TITLE	STRUCTURAL GEOLOGY AND GEOLOGICAL MAPPING 1	CODE: IG 2403, GC 2401

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dorin Sorin Baciu, PhD	Geology

PREREQUISITES	Physical Geology; Palaeontology; Sedimentary and Metamorphic Petrology

OBJECTIVES	The presentation of the crust deformations ordered in relation to the types of stresses generated by plate kinematics, from the continental level to the regional and local level, and the mapping of geological structures
COURSE CONTENTS	Structural geology – object and means of the study of structural geology and geological mapping, geometry and behaviour of the crust tensions within the movement plates; concepts of rock mechanics and experimental tectonics; primary structures of sedimentary rocks and igneous rock-layers, definition and the layer elements, concordance and non-concordance of the layers, the indices of the stratigraphic polarity . Tectonic structures: fault, fault definition and elements, their classification, the direction of movement of the fault compartments, folds, the definition of the association folds-faults, the overthrust nappe. Distention of tectonic structures on a global, regional and local scale. Tectonic structures of the compression-subduction, orogenesis and geosyncline theory, isostatical readjustment, the structural level concept, reverse fault, characteristics and evolution. Romanian territory and tectonic plates.
PRACTICAL	Laboratory work objectives: Introduction to methods of geological mapping of the primary structures of sedimentary rocks and igneuos rocks. Litostratigraphic columns. Cartographic representation of the tectonic structures: monoclinal structures, drawing cartographic limits, interpretation of the geological sections, faults and folds structures, geological sections of the drilling data. 3D reconstruction of the basin based on seismic data.
TEACHING METHODS	Interactive presentation, debates

RECOMMENDED READING	Allen P.A. and Allen J.R. (2005). Basins analysis- Principles and Applications, 2nd edition, Blackwell Publishing 549 p. Brânzilă M. (2003). Cartarea şi cartografierea structurilor geologice, Ed. Univ."Al.I.Cuza"Iaşi, 180 p. Brookfield E. Michael. (2004). Principles of Stratigraphy. Blackwell Publishing, 340 p. Busby and Ingersoll (1999). Tectonics of Sedimentary Basins, Blackwell Publishing. Dinu C., Pauliuc S. şi Barus T. (1988). Geologie structurală, lucrări practice, Universitatea Bucureşti, 208 p. Einsele G. (1992). Sedimentary Basins: Evolution, Facies and Sediment Budget, 2nd edition, Springer-Verlag. Berlin 792 p. Grasu C. (1997). Geologie structurală. Ed. Tehnică.244 p. McClay K. (2006). Structural Geology for Petroleum Exploration, Nautilus Ltd, Geosience, 503 p.

ASSESSMENT METHODS	Conditions	Fulfilment of course and laboratory obligations
	Criteria	Cumulative assessment
	Way of evaluation	Practical and written exam
	Formula of the final mark	0.70 E + 0.30 P

COURSE TITLE	IGNEOUS PETROLOGY	CODE: IG 2402, GC 2402

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Nicolae Buzgar, PhD	Geology

PREREQUISITES	Mineralogy

OBJECTIVES	To offer a background on the igneous rocks and magmas (composition, genesis, evolution and occurrence).
COURSE CONTENTS	Basic concepts. Magmas and their properties. The mineralogical composition of igneous rocks. Classification of igneous rocks. The bodies of igneous rocks. Melting and crystallisation. Magmatic evolution. Igneous rock associations.
PRACTICAL	Study of the most important igneous rocks in hand specimens and thin sections.
TEACHING METHODS	Lectures based on video projections, debates, problematisation, independent research.

RECOMMENDED READING	Bard J.P. (1980). Microtexture des roches magmatiques et métamorphiques. Masson Ed., Paris, 192 p. Clarke D. B. (1993). Granitoid Rocks. În: Topics in the earth sciences, vol. 7. Chapman & Hall, 280 p. Cox K. G., Bell J. D., Pankhurst R. J. (1979). The interpretation of igneous rocks. George Allen & Unwin, London, 450 p. Hall A. (1996). Igneous petrology. Prentice Hall, London, 551 p Hibbard M. J. (1995). Petrography to Petrogenesis. Prentice Hall, New Jersey, 587 p. Pavelescu L. (1980). Petrografia rocilor magmatice şi metamorfice. Ed. Teh., Bucureşti, 446 p. Pitcher W. S. (1997). The Nature and Origin of Granite, 2nd edition. Chapman & Hall, London. 387 p. Rădulescu D. (1981). Petrologie magmatică şi metamorfică. Ed. Didac. Ped., Bucureşti, 366 p. Winter J. D. (2000). An introduction to Igneous and Metamorphic Petrology. Prentice Hall, New Jersey, 685 p.

ASSESSMENT METHODS	Conditions	Active participation to lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests
	Formula of the final mark	50% D+50% E

COURSE TITLE	SEDIMENTARY PETROLOGY 2	CODE: GC 2403, IG 2401

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Petru Ştefan, PhD	Geology

PREREQUISITES	Mineralogy; Physical geology; Sedimentary petrology 1

OBJECTIVES	Systemic presentation of sedimentary rocks according to the genetic, petrographical composition and utility criteria
COURSE CONTENTS	Sediment Texture Classification of Sedimentary Rocks: - Siliciclastic Sediments: Sandstones, Conglomerates and Breccias - Volcaniclastic Sediments - Limestones - Clays - Cherts And Siliceous Rocks - Iron Rich Sediments - Bauxites - Sedimentary Phosphate Deposits - Manganese Rich Sediments - Evaporites
PRACTICAL	Mineralogical constituents of sedimentary rock: - Siliciclastic Sediments: Sandstones, Conglomerates and Breccias - Siliciclastic Sediments: Sandstones, Conglomerates and Breccias - Volcaniclastic Sediments - Limestones - Clays - Cherts And Siliceous Rocks - Iron Rich Sediments - Bauxites - Sedimentary Phosphate Deposits - Manganese Rich Sediments - Evaporites
TEACHING METHODS	Lecture and microscope observation

RECOMMENDED READING	
	Anastasiu N. (1987). Petrologia rocilor sedimentare, Ed. teh., Bucureşti. Atanasiu N. (1977). Minerale şi roci sedimentare, Ed. Teh., Bucureşti. Atanasiu N., Jipa D. (1983). Texturi şi structuri sedimentare, Ed. Teh., Bucureşti. Buzgar N. (2000). Petrologia rocilor sedimentare, Ed. Univ. Iaşi. Jipa D. (1987). Analiza granulometrică a sedimentelor, Ed. Acad., Bucureşti. Papiu C.V. (1960). Petrologia rocilor sedimentare, Ed. Acad., Bucureşti. Petreuş I. (1977). Petrologia rocilor sedimentare - curs litografiat, Iaşi. Rădulescu D., Atanasiu N. (1979). Petrologia rocilor sedimentare - Ed. Did. şi Ped., Bucureşti. Ştefan P. (1987). Petrologia rocilor sedimentare, lucrări practice, Ed. Univ., Iaşi.

ASSESSMENT METHODS		
	Conditions	Attendance to practical classes
	Criteria	Periodical evaluation
	Way of evaluation	Discussion, Examination paper
	Formula of the final mark	30% evaluation during the semester + 30% discussion + 70 % examination paper

COURSE TITLE	HYDROGEOCHEMISTRY	CODE: GC 2404

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Cristina Oana Stan	Geology

PREREQUISITES	Analytical Chemistry; Mineralogy

OBJECTIVES	The main objective is knowledge of aqueous geochemistry, especially: the origin and composition of natural waters, distribution of dissolved compounds in natural waters, interaction in rock-water system, geochemistry of individual parts of the hydrosphere (atmospheric water, surface water, groundwater, sea water).
COURSE CONTENTS	General Considerations. Chemical And Physical Properties Of Water. Hydrologic Cycle. Global Water Reservoirs Chemistry Of Natural Waters Carbonate System Classifications and Geochemical Evolutions of Natural Waters. Atmospheric Water, Groundwater, Surface Waters, Seawater
PRACTICAL	Chemical water analysis: pH, TDS, major ions, pollutants Interpretation of Chemical Analyses Water Use
TEACHING METHODS	Discussions, demonstrations, multimedia instruction

RECOMMENDED READING	Drever J. I. (1997). The geochemistry of natural waters. Prentice Hall, New Jersey.. Fitts C., (2002). Groundwater science, Academic Press, London, UK. Popa Gh. (2002). Hidrogeochimie. Ed. Universității „Al.I.Cuza" – Iaşi Popescu Rodica (2000). Hidrogeochimie. Ed. Univ. din Bucureşti.

ASSESSMENT METHODS	Conditions	Attendance to laboratory classes
	Criteria	Cumulative evaluation
	Way of evaluation	During the semester and examination paper
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	ENGLISH 2	CODE: GC 2405

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	P	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English 1

OBJECTIVES	By the end of the semester, - the students will have revised and deepened the concepts learned during the previous year of study and throughout the previous semester and will have enriched their vocabulary through exercises with a higher level of difficulty than those used during the previous semester - the students will have become familiarised with aspects of Australian culture and civilisation
PRACTICAL	Morphology: the verb, the noun, determiners, pre-determiners and post-determiners, the numeral, the adjective, the adverb, the pronoun, the preposition and the conjunction Syntax: the sequence of tenses; active voice / passive voice; direct speech / Indirect speech; affirmative sentences / negative sentences / interrogative sentences; "if" clauses; relative clauses; "wish" clauses;clauses with causative "have" and causative "get" The texts used as starting-points for revision and consolidation deal with the following topics: *advancements in science and technology and the ethical issues they generate (progress in medicine and genetics, artificial intelligence, the conquering of space) / important figures in the field of geology and their accomplishments, the importance of geology and its future as a science* 1. oral communication: simulating instances communication that the students would encounter in real life (e.g.: *being the interviewer or the interviewed in an interview with a famous figure from the field of geology, being part of the first human expedition to Mars* etc.) a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *cloning – acceptable or unacceptable?, artificial intelligence – a threat in the future?, lethal illnesses – will they be eradicated in 20 years' time?* etc. 2. written communication: short essays of opinion, letters, articles, descriptions of persons / objects / places, brief narrations of events
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	
	Gălăţeanu-Fârnoagă, G., *Limba engleză în conversaţie*, Editura Stiinţifică şi Enciclopedică, Bucureşti, 2000 Hulban, H., *Syntheses in English Morphology,* Perspectives of the English Language Series, 2, Editura Spanda, Iaşi, 2001 Lăcătuşu, T., *The Simple Independent Sentence*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Workbook, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004

ASSESSMENT METHODS	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	GEOLOGICAL FIELD WORK	CODE: GC 2406

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
		4		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Mitică Pintilei	Geology

PREREQUISITES	Physical Geology; Mineralogy; Structural Geology; Sedimentary Petrology; Igneous Petrology

OBJECTIVES	General objective: application of theoretical knowledge acquired during the courses and practical works from the first two years of study. Specific objectives: - the recognizing of diverse types of rocks and minerals from the terrestrial crust; - the identification of geological formations from different areas; - the elaboration of a sketch and geological section; - the recognizing of geological structures: syncline, anticline, faults etc.; - the identification of the positions in space of the strata with the help of the geological compass.
COURSE CONTENTS	
PRACTICAL	
TEACHING METHODS	Observation, demonstration, analysis, case study.

RECOMMENDED READING	Anastasiu N. (1987). Petrologia rocilor sedimentare, Ed. Tehn. Bucureşti. Grasu C. (1997). Geologie structurală, Ed. Tehn., Bucureşti. Olaru L., Ionesi V., Țabără D. (2004). Geologie fizică. Ed. Univ. „Al. I. Cuza" Iaşi, 468p. Rădulescu D. (1981). Petrologie magmatică şi metamorfică, Ed. Did. şi Pedag., Bucureşti, 366p.

ASSESSMENT METHODS	Conditions	Participation to all field trip applications
	Criteria	Cumulative evaluation
	Way of evaluation	Oral examination
	Formula of the final mark	0.5 evaluation during field trip + 0.5 final evaluation

COURSE TITLE	GEOCHEMISTRY 1	CODE: GC 3501

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Mitică Pintilei	Geology

PREREQUISITES	Chemistry; Mineralogy; Petrology

OBJECTIVES	1. To offer basic knowledge in cosmochemistry and geochemistry; 2. To identify, using specific analytical techniques, chemical elements from minerals, rocks and ores.
COURSE CONTENTS	1. Introduction: definition and concepts. 2. The Universe. 3. The Meteorites. 4. Cosmic abundance of elements and elements nucleosynthesis. 5. The Moon. 6. The Earth.
PRACTICAL	Identification and quantitative determination of some minor and trace elements from minerals, rocks and ores
TEACHING METHODS	Lectures, debates, independent observation

RECOMMENDED READING	Faure G. (1998). Principles and Applications of Geochemistry, Prentice- Hall, London, 505 p. Brownlow A.H. (1996). Geochemistry, Prentice-Hall, Inc. New Jersey, 545 p. Ottonello G. (1997). Principles of Geochemistry, Columbia University Press, New York, 804 p.

ASSESSMENT METHODS	Conditions	Fulfilment of student obligations (course and practical)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + exam
	Formula of the final mark	0.75 E + 0.25 P

COURSE TITLE	GEOLOGY OF ROMANIA 1	CODE: GC 3502, IG 4704

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG 3,4	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	D + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Mihai Brânzilă, PhD	Geology

PREREQUISITES	Stratigraphy; Palaeontology; Structural Geology; Sedimentary, metamorphic and igneous Petrology; Metallogeny.

OBJECTIVES	1. The synthesis of geodynamic processes, structural layout and lithostratigraphy and the natural resources from the structural platform units and the Northern Dobrudja orogenic unit. 2. Chronological presentation of the tectonic structures and processes from the structural units of platforms and the Northern Dobrudja orogenic unit.
COURSE CONTENTS	1. Presentation of the major structural units of the platforms. Pre-alpine platforms: Moldavian P., Barlad P., Danube Delta P., Wallachian P., Southern Dobrudja P. and Central Dobrudja massif. 2. Presentation of the Northern Dobrudja orogenic unit. 3. Presentation of alpine platforms: Babadag and Covurlui.
PRACTICAL	1. Macroscopic study of petrographic and paleontological samples for each structural unit. 2. Analysis and interpretation of geological and structural maps for the specific learned units, geological profile layout. 3. Mapping of synthetic lithostratigraphical columns through each structural unit.
TEACHING METHODS	Debating lecture, independent observation and problem spotting.

RECOMMENDED READING	Grasu C. et al. (2002). Sarmatianul din sistemul bazinelor de foreland ale Carpatilor Orientali, Ed.Tehnica Bucuresti. Ionesi L. (1994). Geologia unitatilor de platforma si a orogenului Nord Dobrogean, Ed.Tehnica, Bucuresti. Mutihac V.,Ionesi L. (1974). Geologia Romaniei Ed.Tehnica Bucuresti. Mutihac V., Stratulat Maria, Fechet Roxana (2004). Geologia Romaniei, Ed.Did. Ped R.A. Bucuresti. Saulea Emilia (1967). Geologie istorica, Ed.did. si ped. Bucuresti. Sandulescu M. (1984). Geotectonica Romaniei, Ed. Tehnica Bucuresti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional commitments (lectures and practical works).
	Criteria	Cumulative evaluation.
	Way of evaluation	During the semester and exam.
	Formula of the final mark	Up to 50 % D + 50 % E

COURSE TITLE	METALLOGENY 1	CODE: GC 3503, IG 3503

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Dan Stumbea, PhD (L) Teaching Assistant Mitică Pintilei (P)	Geology

PREREQUISITES	Crystallography; Mineralogy; Structural geology and geological cartography; Petrology (igneous, sedimentary); Geochemistry

OBJECTIVES	Knowledge of: - factors of metallogenic processes - mineralization and ore-forming processes - genetic types of ore deposits - genetic, morphological, mineralogical, geochemical features of mineralizations
COURSE CONTENTS	I. Fundamentals Classification of ore deposits Shape of ore deposits II. Igneous ore deposits Magmatic differentiation process Magmatic metallogenetic processes Orthomagmatic ores Ores concentrated through the process of magmatic differentiation (pegmatite, pneumatolite, pyrometasomatic, hydrothermal deposits) III. Exogenous ore deposits Ore deposits of marine sedimentation Residual ore deposits Ore deposits formed through infiltration IV. Metamorphic ore deposits
PRACTICAL	I. Identifying the texture and structure of ore mineralization I.1 Igneous ore deposits I.2 Exogenous ore deposits I.3 Metamorphic ore deposits II. Macroscopical and microscopical identification of ore mineral associations III. Identifying genetic types of ore deposits using the textural, structural and mineralogical features
TEACHING METHODS	Lectures, debates, learning through discovery

RECOMMENDED READING	Mârza, I. (1985). Geneza zăcămintelor de origine magmatică. Vol. 2 Metalogenia ortomagmatică. Metalogenia pegmatitică. Ed. Dacia, Cluj-Napoca, 331p. Mârza, I. (1992). Geneza zăcămintelor de origine magmatică. Vol. 3 Petrometalogenia skarnului (pirometasomatoza). Petrometalogenia greisenului (pneumatoliza). Presa Universitară, Cluj-Napoca, 382 p. Mârza, I. (1999). Geneza zăcămintelor de origine magmatică. Vol. 4 Metalogenia hidrotermală. Presa Universitară, Cluj-Napoca, 486 p. Stumbea, D. (2007). Geologia zăcămintelor de minereuri. Casa Ed. „Demiurg", Iaşi, 209 p.

ASSESSMENT METHODS		
	Conditions	Active participation to lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests
	Formula of the final mark	0.70 D + 0.30 E

COURSE TITLE	METAMORPHIC PETROLOGY	CODE: GC 3504, IG 3501

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Gabriel Ovidiu Iancu, PhD	Geology

PREREQUISITES	Mineralogy; Igneous Petrology

OBJECTIVES	To present the main factors responsible for the genesis of metamorphic rocks, to identify, describe and analyze the most important groups of metamorphic rocks
COURSE CONTENTS	Units of measurement used in metamorphic petrology; Definition of metamorphism; Types of metamorphism; Nomenclature and classification of metamorphic rocks; Rock deformation; physical and chemical conditions of metamorphism; Metamorphic limits; Fluid phases during metamorphic processes; Chemical reactions in metamorphic rocks; Petrogenetic grids; Metamorphic facies; Index minerals; Metamorphic facies series; Contact metamorphism; Cataclastic metamorphism; Shock Metamorphism; Regional metamorphism; Occurrences; general features; Different types of prograde gradients; Metamorphism of ultramafic rocks; Metamorphism of granitoids; Metamorphism of dolomites and limestones; Metamorphism of arenaceous rocks; Metamorphism of politic rocks; Migmatites; Granulites; Metamorphism of mafic rocks; Eclogites; UHP metamorphism; Sea floor metamorphism; Geothermometry and geobarometry of metamorphic rocks; Geochronology and thermocronology of metamorphic rocks; P-T-t paths; Occurrences of metamorphic rocks in Romania; Economic importance of metamorphic rocks and minerals.
PRACTICAL	Minerals of metamorphic rocks; Fabric of metamorphic rocks; Graphical representation of metamorphic mineral assemblages; Petrography of very low P/T rocks (sanidinite facies), Petrography of low P/T rocks (zeolitic facies and pyroxene – hornfelse facies); Petrography of medium P/T rocks (prehnite – pumpellyite facies, green schist facies, epidote – amphibolite facies, amphibolites facies, granulite facies); Petrography of high P/T rocks (glaucophane – schist facies, eclogite facies); Petrography of ultra - high P/T rocks (eclogite facies); the use of main geochemical diagrams for the interpretation of metamorphic rocks
TEACHING METHODS	Lectures based on video projections, debates

RECOMMENDED READING	Bucher K. & Frey M. (2002). Petrogenesis of metamorphic rocks. (7th edition) Springer-Verlag, Berlin, 318 p.; Iancu.O.G. (2007). Petrologie metamorfică. Ed. Sedcom Libris Iaşi, 190 p. ; Kornprobst J. (1994). Les roches métamorphiques et leur signification géodynamique. Masson, Paris, 224 p.; Miyashiro A. (1994). Metamorphic petrology. UCL press, London; Rădulescu D. (1981). Petrologie magmatică şi metamorfică. Ed. Did. şi Pedag. Bucureşti.; Spear F.S. (1993). Metamorphic phase equilibria and pressure-temperature-time paths. Mineralogical Soc. of America, Monograph, Washington, D.C., 799 p.; Yardley B. W. D. (1989). An introduction to Metamorphic Petrology. Longman, New York, 248 p.

ASSESSMENT METHODS	Conditions	Fulfilment the student duties during lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests and written exam
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	ECONOMICAL GEOLOGY 1	CODE: GC 3505, IG 3505

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	1	70	80	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Laviniu Apostoae, PhD	Geology

PREREQUISITES	Geostatistics; Igneous and Metamorphic Petrology; Structural Geology; Metallogeny

OBJECTIVES	Training of future specialists in Geology and Geochemistry for rational research and ore deposit evaluation.
COURSE CONTENTS	1. Introduction. 2. Stages of exploration. 3. Systems and networks of exploration. 4. Methodology of exploration works. 5. Studies of pre-feasibility and feasibility. 6. Features of exploration of different deposit types. 7. Sampling. 8. Definition and classification of reserves. 9. Evaluation of ore deposits. 10. State of reserves/resources from Romania and from abroad.
PRACTICAL	Based on geological, geochemical and geophysical data obtained from surface and underground research: a. there will be estimated the prospects of the presence of a mineralization within an area b. a programme of research and sampling will be devised c. reserves will be delimited and estimated through conventional and geostatistical methods d. the opportunity of attracting the reserves calculated in the economic circuit will be estimated
TEACHING METHODS	Lecture; discussion

RECOMMENDED READING	Harris, D.P. (1990). Mineral exploration decisions: a guide to economic analysis and modelling. John Wiley, New York. Harris, D.P. (1990). Mineral exploration decisions: a guide to economic analysis and modelling. John Wiley, New York. Kužvart, M., Bőhmer, M. (1986). Prospecting and exploration of mineral deposits. Elsevier, Amsterdam. Moon,C., Whateley, M., Evans, A.M. (2005). Introduction to mineral exploration. Blackwell. Popa, Gh., Erhan, V. (1982). Explorarea geologică şi evaluarea zăcămintelor. Ed. Univ. „Al. I. Cuza" Iaşi. Sinclair A.J., Blackwell G.H. (2002). Applied Mineral Inventory Estimation. Cambridge.

ASSESSMENT METHODS	Conditions	All professional obligations will be fulfilled during laboratory classes
	Criteria	The correctness of results obtained in taking over and interpreting field data
	Way of evaluation	The evaluation of students' knowledge is done both during the semester (continuous evaluation) and at the end of the module (written examination)
	Formula of the final mark	0.30 laboratory activity + 0.35 continuous evaluation + 0.35 examination

COURSE TITLE	PHYSICAL GEOCHEMISTRY	CODE: CG 3507

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Dumitru Bulgariu, PhD	Geology

PREREQUISITES	General Chemistry; Mineralogy; Instrumental methods in Geosciences; Petrography; Geochemistry

OBJECTIVES	To learn the fundamentals of physical chemistry. To acquire the skills necessary for the application of the principles and notions of physical chemistry and the interpretation of the dynamics of geochemical systems; to estimate the stability and the evolution conditions of mineral systems.
COURSE CONTENTS	1. Fundamentals of physical chemistry 2. The laws of thermodynamics 3. The thermodynamic potentials 4. The thermodynamic properties of simple mineral systems 5. The thermodynamic of equilibrium in mineral systems 6. The thermodynamic of heterogeneous mineral systems 7. The thermodynamic of solid solutions 8. The evaluation of speciation issues 9. The principles of geochemical kinetics 10. Thermodynamics and kinetics of speciation and of the inter-phase distribution processes in heterogenous solid/liquid systems 11. Global dynamics of geochemical micro-systems
PRACTICAL	1. The evaluation of the partial and apparent molar properties 2. The evaluation of the reaction heat 3. The evaluation of thermodynamic properties of liquid solutions 4. The evaluation of the thermodynamic properties of solid solutions 5. The experimental study of $CaSO_4 – H_2O$ system 6. The experimental study of $SiO_2 – Al_2O_3 – H_2O$ system 7. Simultaneous evaluation of mineral compounds data. Linear derivative of fundamental thermodynamic data 8. Modelling of chemical speciation processes in heterogenic solid/liquid systems 9. Modelling of inter-phases distribution in heterogenic solid/liquid systems 10. Modelling of geochemical micro-systems dynamic – case study.
TEACHING METHODS	Explicative-reproductive (speech). Controlled teaching. Learning through discovery. Experimental-investigative (problematisation, debate).

RECOMMENDED READING	Anderson G.M., Crerar D.A. (1993). Thermodynamics in Geochemistry. Oxford University Press. Atkins P.W. (1993). Tratat de chimie fizică. Ed. Tehnică, Bucureşti. Iorga N. (1988). Termodinamica sistemelor minerale. Univ. „Al. I. Cuza" Iaşi. Navrotsky Al. (1994). Physics and Chemistry of Earth Materials. Cambridge University Press.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures + practical works)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + exam
	Formula of the final mark	0.70 E + 0.30 P

COURSE TITLE	GEOCHEMISTRY OF COLLOIDS	CODE: GC 3508

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Traian Gavriloaiei, PhD	Geology

PREREQUISITES	Analytical Chemistry; Mineralogy

OBJECTIVES	- To understand the complex interactions between mineral surface and solution. - To study the large surface areas associated to the characteristic size of colloidal particles from aquatic, atmospheric and soil systems. - To study the important role of colloidal phenomena in the physical-chemistry appearance.
COURSE CONTENTS	1. Introduction. The colloidal domain 2. Production of colloidal particles; stability and purification of colloidal particles 3. Specific and non-specific properties of colloids 4. Electrostatic interactions in colloidal systems 5. The investigation of adsorption phenomena onto minerals surface 6. The investigation of soil colloids, aquatic colloids and atmospheric colloids
PRACTICAL	1. The formation and stability of colloidal suspension. 2. The determination of coagulation concentration (CCC and CFC). 3. The adsorption study of different cation solutions onto clay minerals (bentonite, kaolinite etc). 4. Soil cation and anion exchange capacity (CEC). 5. Modelling of competitive ion binding to minerals surfaces.
TEACHING METHODS	Lectures, discussions, problematisation, learning through discovery, presentation of slides

RECOMMENDED READING	Giesse G.F., van Oss C.J. (2002). Colloid and Surface Properties of Clays and Related Minerals, Marcel Dekker, NY. Isac V., Onu A., Tudoreanu C., Nemțoi Gh. (1995). Chimie fizică, lucrări practice, Ed. Ştiința, Chişinău. Jenne E. A. (1998). Adsorption of Metals by Geomedia, Academic Press, California. Vaughan D.J., Wogelius R.A. (eds.) (2000). Environmental mineralogy, EMU Notes Mineral., 2, Eötvös Univ. Press, Budapesta.

ASSESSMENT METHODS	Conditions	Fulfilment of professional duties (lectures, practical works or seminars)
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.75 E + 0.25 D

COURSE TITLE	GEOCHEMISTRY 2	CODE: GC 3601, IG 4804

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG 3, 4	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Mitică Pintilei	Geology

PREREQUISITES	Chemistry; Mineralogy; Petrology

OBJECTIVES	1. To offer basic knowledge on the distribution of chemical elements in magmatic and metamorphic systems. 2. To identify, to make quantitative determinations and to interpret the distribution of chemical elements data in geochemical context.
COURSE CONTENTS	Distribution of elements 1. Presentation of analytical data. 2. The behaviour of the elements during the crystal-liquid fractional process. 3. Partition coefficients in natural and artificial systems. 4. Volcanic sublimates and volcanic emanations. 5. Topics on metamorphic and metasomatic processes. 6. Structural control of elements distribution. 7. Ionic radius and ionic charge. 8. Atomic substitution. Isotope issues.
PRACTICAL	Semi-quantitative and quantitative determination of some chemical elements and interpretation of acquired data.
TEACHING METHODS	Lecture, debate, independent observation

RECOMMENDED READING	Faure G. (1998). Principles and Applications of geochemistry. 2nd ed. Prentice-Hall, Inc. New Jersey, 600 p. Krauskopf K.B., Bird D. (1995). Introduction to geochemistry. 3rd ed. McGraw- Hill Inc., 647 p. Rollinson H. (1993). Using Geochemical Data: evaluation, presentation, interpretation. Longman Scientific & Technical, Burnt Mill, Harllow,England, 352 p.

ASSESSMENT METHODS		
	Conditions	Fulfilment of student obligations (course and practical)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + exam
	Formula of the final mark	0.75 E + 0.25 P

COURSE TITLE	BIOGEOCHEMISTRY	CODE: GC 3602

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Cristina Oana Stan	Geology

PREREQUISITES	Analytical Chemistry; Hydrogeochemistry; Mineralogy

OBJECTIVES	To gain understanding of biogeochemical cycles, using geobotanical and phytogeochemical investigations, importance of macro- and trace elements in the life of organisms.
COURSE CONTENTS	General Considerations. Biosphere. Geobotany Biophile Elements. Circulation of Elements in Nature. Biogeochemical Cycling Biogeochemical Processes Geobotanical Investigation Phytogeochemical Investigation Biogeochemical Cycling of Macroelements and Trace Elements Human Biogeochemistry
PRACTICAL	Collecting and preparing the vegetal samples for biogeochemical analysis Measuring the water amount Analysis of chlorophyll pigments: chlorophyll *a,* chlorophyll *b* Mineralization Methods Quantitative determination of macro- and microelements Interpretation of Analyses
TEACHING METHODS	Discussions, demonstrations, multimedia instruction

RECOMMENDED READING	Adriano, C. D. (2001). Trace elements in terrestrial environments. Ed. Springer. Buracu, O. (1978). Prospecțiunea geochimică a zăcămintelor de minereuri. Ed. Tehnică. Rauța, C. (1980). Metodologia de analiză a plantei. ICPA, Bucureşti Schlesinger, W. H. (1994). Biogeochemistry. Academic Press.

ASSESSMENT METHODS	Conditions	Attendance to laboratory classes
	Criteria	Cumulative evaluation
	Way of evaluation	During the semester and examination paper
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	ENVIRONMENTAL GEOCHEMISTRY	CODE: GC 3603

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Victor Şabliovschi, PhD	Geology

PREREQUISITES	Mineralogy; Magmatic and metamorphic petrology; Sedimentary petrology; Metallogeny; Gemmology; Terrestrial and extraterrestrial volcanism; Geochemistry; Pedogeochemistry; Special problems of geochemistry; Organic geochemistry; Special problems of environmental geochemistry; Geochemistry of fuel minerals

OBJECTIVES	1. Terra – life geosytem; .2. Information on organic matter in forester systems. 3. The ecology, geochemistry and economy of Romanian forests. 4. Atmosphere. Meteorological satellites. Geochemistry of atmosphere. 5. Unconventional sources of energy. Atmosphere pollution in Suceava, Botoşani, Iaşi and Vaslui districts. 6. Hidrosphere. Geochemistry of natural waters. Surficial waters. Industrial waters. Lakes. Oceans. 7. Water Pollution caused by industrial waste. Toxic and dangerous substances. Pesticides. 8. Pedosphere. Agricultural and forest soils. Classification of soils from Europe. 9. Geochemistry of mineral and organic complexes in cultivated soils and forest soils. Geochemistry of soil solution. 10. Soil pollution with saline waters and hydrocarbons (PAH). 11. Biosphere. Monitoring of biosphere with different organisms (moss and algae). 12. Biogeochemical aureoles on the U, Mn, Cu, Pb, Zn mineralizations from Romania. 13. Anomalous binding of accidental spillways of oil product, pesticides DDT, HCH, cyanides. 6. Geochemistry of Co and Ni in soil and vegetation developed on different parental materials.
COURSE CONTENTS	I. Terra. Ecosystems. Classification; II. Information on organic matter in forest systems; III. Geochemical components in the development of forestry; IV. Atmosphere. Meteorological satellites. Geochemistry of atmosphere. UE Directives. Pollution phenomena: smog, acid rain. UE Directives; V. Unconventional sources of energy. Atmosphere pollution in Suceava, Botoşani, Iaşi and Vaslui districts. VI. Hydrosphere. Geochemistry of natural waters. Surficial waters. Industrial waters, lakes, oceans. EU Directives. VII. Water pollution with industrial waste, toxic and dangerous substances; VIII. Pedosphere. Soils and pedosphere. Agricultural and forest soils. Classification of soils from Europe. EU Directives; IX. Geochemistry of mineral and organic complexes in cultivated soils and forest soils. Humic acids. Fulvic acids. Humic complexes. Geochemistry of: P, S, N, C and heavy metals in agricultural soils; X. Geochemistry of forest soils (spruce and beech) from Romania XI. Biosphere. Monitoring of biosphere with different organisms (moss and algae). Biogeochemical aureoles on the U deposits of Pietricea Hill – Bihor; XII. Biogeochemical aureoles on the manganese deposits of Runculeț and Paltin, Holdița lithozone – Eastern Carpathians, XIII. Biogeochemical aureoles on the sulphide deposits from Fagul Oltului – Izvorul Oltului, Bălan; XIV. Geochemistry of cobalt and nickel in soil and vegetation developed on different parental materials.
PRACTICAL	I. Terra - life geosystem; II. Information on organic matter in forest; III. The ecology, geochemistry and economy of Romanian forests; IV. Geochemistry of atmosphere; V. Unconventional sources of energy; VI. Geochemistry of natural waters; VII. Water pollution with industrial waste; VIII. Geochemistry of agricultural and forest soils; IX. Geochemistry of organic matter in European forest soils (spruce and beech); X. Soil pollution with hydrocarbon and saline water; XI. Monitoring of biosphere pollution with different organisms (moss and alga); XII. Biogeochemical aureoles on sulphide deposits; XIII. Natural insecticides; XIV. Geochemistry of Co and Ni in soils and different forests.
TEACHING METHODS	Interactive presentation, debates. Video and overhead projector.

RECOMMENDED READING	Lollar B. (2005). Environmental Geochemistry (Treatise on geochemistry series, vol. 9), New York, 648 p. Manahan S. E. (2000). Fundamentals of Environmental Chemistry, Sec. Ed, vol I –III, New York, 967p.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (training and practical work)
	Criteria	Cumulative assessment
	Way of evaluation	Preliminary examination + final written examination
	Formula of the final mark	$P_{1\text{-}2}$ (0.40) + E (0.40) + P (0.20)

COURSE TITLE	APPLIED GEOPHYSICS	CODE: GC 3604

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan-Bogdan Hanu, PhD	Geology

PREREQUISITES	Physics of the Earth; Earthquake and volcanic hazards; Welling geophysics

OBJECTIVES	Explanation of the possible modalities of geological interpretation for the geophysical information resulted during the prospecting activities and the delimitation of the area of applicability of the geophysical methods in different specific situations. The course aims to analyze the features of the geological interpretation process, the specificity of its steps, while the practical activities deal mainly with debates about the results obtained in geophysical prospecting for the geological structure decoding of some economically important areas.
COURSE CONTENTS	Issues and general aspects of the geological interpretation of geophysical information Basic ambiguity of geophysical methods. Resolution capacity of geophysical methods. Their indirect character. Plurality of individual effects over geophysical information Investigation depth and manner of functioning of geophysical methods. Critical analysis of geophysical information subjected to geological interpretation. Correlation between geologic interface and geophysical signature. Relation between seismic signature and geologic interface Geophysical information-geological structure relations in potential field methods. Relations between geophysics petrophysics. The influence of the form, size and depth of the geological bodies upon the geophysical information.
PRACTICAL	Geological interpretation of geophysical information conditioned by local and regional structures. Case studies.
TEACHING METHODS	Lecture with graphic presentations.

RECOMMENDED READING	Botezatu, R. (1982). Modele geofizice ale alcătuirii geologice a României, Editura Academiei, Bucureşti. Botezatu, R. (1987). Bazele interpretării geologice a informațiilor geofizice, Editura Tehnică, Bucureşti. Botezatu, R. et al. (1976). Prospectarea geofizică a zăcămintelor de minereuri, Editura Tehnică, Bucureşti. Gavăt, I. et al. (1973). Interpretarea geologică a prospecțiunilor geofizice, Editura Academiei, Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of all students obligations at lectures and laboratories.
	Criteria	Cumulative evaluation.
	Way of evaluation	Grid test.
	Formula of the final mark	0.50 course subjects + 0.40 practical subjects + 0.10 course attendance

COURSE TITLE	ECONOMICAL GEOLOGY 2	CODE: GC 3605, IG 3607

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO-GC, E-IG

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Laviniu Apostoae, PhD	Geology

PREREQUISITES	Chemistry; Mineralogy; Metamorphic and Igneous Petrology; Metallogeny; Geochemistry; Economical Geology 1; Geological and Environmental Engineering

OBJECTIVES	In order to pass the discipline, the students must: a) know the processes of valorisation and manage the exploitation of different types of solid mineral deposits; b) know the actual economic conjuncture concerning the deposit valorisation; c) make prognostications on the ensuring of ore minerals.
COURSE CONTENTS	1. General notions. 2. Mining pressure. 3. Methods of open pit and underground mining. 4. Special methods of exploitation. 5. Industrial deposits evaluation. 6. Ore dressing. 7. World economic conjuncture on the utilization of mineral resources.
PRACTICAL	Projection of mine opening and preparation work for different deposit types. Projection of the proper extraction and concentration process. Management of sterile resulted from mining and processing activities Evaluation of the obtained income as a result of the mining of a certain deposit type.
TEACHING METHODS	Lecture; discussion

RECOMMENDED READING	Craig, R.J., Vaughan, D. J. Skinner, B. (1996). Resources of the Earth: Origin, Use and Environmental Impact. Prentice Hall. Gocht, W.R., Zantop, H., Eggert, R.G. (1988). International mineral economics. Springer Verlag, Berlin. Kernot, C. (1999). Valuing mining companies. Woodhead Publishing Ltd., Cambridge. Popa, Gh. (1986). Exploatarea şi valorificarea zăcămintelor de substanțe minerale utile, -curs- Ed. Univ. „Al. I. Cuza" Iaşi.

ASSESSMENT METHODS		
	Conditions	All professional duties will be fulfilled during the practical classes
	Criteria	The correctness of results obtained in taking over and interpreting field data
	Way of evaluation	The evaluation of students' knowledge is done both during the semester (continuous assessment) and at the end of the module (written examination)
	Formula of the final mark	0.25 laboratory activity + 0.35 continuous assessment + 0.40 examination

COURSE TITLE	ATMOSPHERIC GEOCHEMISTRY	CODE: GC 3606

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Traian Gavriloaiei, PhD	Geology

PREREQUISITES	Analytical Chemistry; Hydrogeochemistry; Pedogeochemistry

OBJECTIVES	- To develop the assimilation, transfer and investigation capacities for atmospheric data analyses; - To understand the complexity of the chemical phenomena from the atmosphere; - To establish and to use the most adequate methods in quantitative analysis; to identify the main rules which are at the basis of the chemical processes from the atmosphere.
COURSE CONTENTS	1. General aspects of atmospheric geochemistry (structure, composition and mains layers of the atmosphere - troposphere, stratosphere, mesosphere, thermosphere, exosphere). 2. Atmospheric pollution: organic pollutants (VOC), inorganic pollutants (fixed gases-N_2, variable gases-CO_2, CH_4, SO_2, H_2O etc.), suspended/sedimentable particulate matter from the atmosphere. Atmospheric acidification, acid rain. 3. Atmogeochemical cycles: nitrogen and nitrogen oxides, sulphur and sulphur oxides, carbon and carbon oxides, ozone etc. The interaction between water and the atmosphere. 4. Atmospheric aerosols: sources, sinks processes, physical and chemical properties, their role in the atmosphere. 5. Mineral aerosols: sources, sinks processes, physical and chemical properties, their role in the atmosphere 6. Climate changes in Earth's atmosphere, the evolution of Earth's atmosphere, the climate - past and future, global trends and models. Anthropic activities and their impact on climatic changes.
PRACTICAL	1. Introduction to atmospheric data analyses. 2. Statistical interpretation of atmospheric data analyses. 3. Study of atmospheric acidification process. 4. Methods for gas analysis. Problems. 5. The analysis of the nitrous acid from the atmosphere 6. The analysis of the nitric acid from the atmosphere 7. The analysis of the nitrogen oxides from the atmosphere. 8. The analysis of the carbon dioxide from the atmosphere 9. Gas-volumetric determination of carbon dioxide. 10. The modelling of the mineral processes from the atmosphere.
TEACHING METHODS	Lectures, discussions, problematisation, learning through discovery

RECOMMENDED READING	Baumgartel H., Grunbein W., Hensel F. (1999). Global Aspects of Atmospheric Chemistry, ed. by Deutsche Bunsen–Gesellschaft fur Physikalische Chemie, Springer, Frankfurt. Posfai M., Molnar A. (2000). Aerosol particles in the troposphere, a mineralogic introduction, in Environmental Mineralogy, EMU Notes in Mineralogy, vol 2, ed. by D. J. Vaughan, R. A. Wogelius, Eotvos University Press, Budapest.Spurny K. R. (1999). Analytical Chemistry of Aerosols, CRC Press LLC, London. Stefan S. (2002). Fizica aerosolilor atmosferici, ed. ALL, Bucuresti. Wayne R. P. (2000). Chemistry of Atmosphere, 3rd ed., Oxford Univ. Press, New York.

ASSESSMENT METHODS	Conditions	Fulfilment of professional duties (lectures, practical works or seminars)
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.50 D + 0.50 E

THE FIELD OF GEOLOGICAL ENGINEERING

Speciality GEOLOGICAL ENGINEERING

COURSE TITLE	GEOINFORMATICS	CODE: IG 1105

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
		3		42	108	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Viorel Ionesi, PhD	Geology

PREREQUISITES	Informatics (Secondary School)

OBJECTIVES	Students' initiation in using software that can be used in geological engineering.
COURSE CONTENTS	In the introductory part there will be presented some software that can be used by geologists in order to solve specific problems. With the aid of concrete examples, there will be revealed some advantages of using technical calculation as compared to traditional methods (high calculation speed, high precision), and also the traps of an inadequate use of these programs. During these classes, students will work with programs which can be applied right away on subjects that are studied in the first year (ex. Topography) and with programs which can be applied later (in Structural Geology, Geological Cartography, Hydrogeology, Underground Hydraulics, Mining Works, Well Drilling Technology) or with applicability in geological engineering for the future graduates. Special programs will be used to devise and to process database (OpenOffice.org 2.0), programs that allow the digitization of topographical maps (DigiMap) and the process of digital data (Surfer, Global Mapper), or programs which allow the processing and the 3D visualization of geological information acquired from drilling works (RockWorks).
PRACTICAL	Practical applications with the aid of computers and using specified programs.
TEACHING METHODS	Presentation of programs and the way in which to work with these programs (using video projections) and individual work on the computer.

RECOMMENDED READING	Scradeanu D. (1995). Informatică geologică, Ed. Univ. Bucureşti. Toderaş T., Giuşcă R. (2004). Geoinformatică, Ed. Univ. „Lucian Blaga", Sibiu. *** Global Mapper User's Manual, www.globalmapper.com/helpv8/GlobalMapperHelp.pdf *** OpenOffice.org User Guide for Version 2.x, http://documentation.openoffice.org/manuals/OOo2.x/user_guide2_draft.pdf *** RockWorks Manual, www.rockware.com/assets/products/165/downloads/documentation/35/rw14_manual.pdf *** Surfer 8 Self-Paced. Training Guide, www.goldensoftware.com/Surfer8TrainingGuide.pdf

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x D + 0.5 x E

COURSE TITLE	ENGLISH 1	CODE: IG 1106

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	D	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English (Secondary school)

OBJECTIVES	By the end of the semester, - the students will have acquired a significant portion of the main notions of English morphology and syntax, as well as of the main vocabulary of the English language, through a revision of the knowledge acquired throughout high school, the teaching of new concepts and the creation of numerous opportunities for practising the latter - the students will have added to the words and phrases that form the main vocabulary of the English language words and phrases that belong to their field of interest, namely geology - the students will have become familiarised with aspects of British culture and civilisation
PRACTICAL	Morphology: the verb (finite and non-finite tenses; modal verbs; phrasal verbs); the noun (countable and uncountable nouns; the regular plural and some irregular plural forms of countable nouns; problems of agreement; expressing gender through lexical and grammatical means; means of expressing the Genitive case), determiners (articles: the definite article, the indefinite article, the "zero" article; pronominal adjectives: the demonstrative adjective, the possessive adjective, the interrogative adjective, the relative adjective, the indefinite adjective, the negative adjective), some pre-determiners and post-determiners, the numeral (cardinal numerals, ordinal numerals, collective numerals, fractional numerals, adverbial numerals) and the preposition (various nouns and the prepositions that follow or precede them; the difference between prepositions and adverbial particles) Syntax: the sequence of tenses; active voice / passive voice; direct speech / Indirect speech; affirmative sentences / negative sentences / interrogative sentences The texts used as starting-points for revision and the teaching of new concepts deal with the following topics: *the notion of identity, motivations, ideals, plans for the future / family, pets, the notion of "home" / friends, human relations, feelings and attitudes / appearance (physical traits, clothing, footwear), personal health (diet, life-style) / personality traits, likes and dislikes, hobbies / daily routine, habits, changes that disrupt the daily routine / holidays, special occasions (parties, birthdays, anniversaries) / tragic or amusing events / elements of British culture and civilisation* Oral communication: simulating instances of communication that the students would encounter in real life (e.g.: *a conversation during dinner, deciding upon the way in which a family celebration should take place, relating an incident that took place during a geology camp, socializing while at a party etc.)*/a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *one's family as a source of unconditional support versus one's friends as a source of unconditional support, being oneself versus trying to appear as someone that one is not, extreme hobbies (bungee jumping, sky diving etc.) versus a less dynamic life-style etc.* Written communication: practising the shift from informal English to formal English and vice versa, the description of a person / an object / a place; the brief narration of an event
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	
	Gălăţeanu-Fâmoagă, G., Comişel, E., *Gramatica limbii engleze pentru uz şcolar*, Editura Omegapress, Bucureşti, 1993 Lăcătuşu, T., *Essentials of English Syntax. Complex Structures*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Student's Book, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004 Vereş, G., Cehan, A., Andriescu, I., *A Dictionary of English Grammar*, Editura Polirom, Iaşi, 1998

ASSESSMENT METHODS		
	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	GEOLOGICAL FIELD WORK	CODE: IG 1205

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Viorel Ionesi, PhD	Geology

PREREQUISITES	Physical Geology; Mining Topography; Crystallography; Palaeontology 1

OBJECTIVES	1. Students' introduction to the geological field activities required from an engineering geologist. 2. Consolidation of the theoretical knowledge and practical skills acquired during the courses and tutorials presented in the first year of study (Physical Geology, Mining Topography, Crystallography, Palaeontology).
COURSE CONTENTS	In the first stage of the geological field work, the students are informed about the area and the aims of the stage. Also, the students will be updated with information regarding the required equipment, safety, fire prevention and extinction, personal behaviour and first aid techniques. During the field work, which represents the main activity of this topic, an important part is assumed to develop the following skills: orientation on the field (pinpointing of observation spots on the topographical map); noting the geological details in the field book; acknowledgement of the main types of rocks and measurement of different geological structures by means of a geological compass; collecting lithological samples (for thin sections, micro-paleontological and palynological analyses etc.). In order to familiarize the students with geological activities, field trips at quarries, mines, geological reservation, etc. will be organized.
PRACTICAL	At the end of each day, the topics presented will be discussed, samples collected will be counted and the measurements performed by means of the geological compass will be added to the topographical maps.
TEACHING METHODS	Oral presentation for all the geological points of interest (outcrops, quarries, mine etc). Individual work with each student.

RECOMMENDED READING	Airinei Şt., Bercia I., Florea N., Gurău A., Mamulea A. M., Pricăjan A. (1961). Practica geologică, vol II, Ed. Tehnică, Bucureşti. Grasu C. (1997). Geologie structurală. Ed. Tehnică, Bucureşti. Olaru L., Ionesi V., Țabără D. (2004, 2008). Geologie fizică. Ed. Univ. "Al. I. Cuza" Iaşi. Pană Ioana, Orbocea Marioara, Grigorescu D. (1986). Practica stratigrafică. Universitatea din Bucureşti. Stoica C., Manilici V., Filipescu M., Corbu Mariana (1960). Practica geologică. Vol. I, Ed. Tehnică, Bucureşti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of the professional obligations related to geological field work
	Criteria	Cumulative evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 X periodical test + 0.5 X exam result

COURSE TITLE	ENGLISH 1	CODE: IG 1206

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	P	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English (Secondary School)

OBJECTIVES	By the end of the semester, - the students will have revised the syllabus of the first semester and will have acquired further notions of English morphology and syntax - the students will have added new words and phrases both to the main vocabulary of the English language, and to the specialized vocabulary used in their field of interest, namely geology - the students will have become familiarized with aspects of American culture and civilization
PRACTICAL	Morphology: the adjective (the comparative degree and the superlative degree of adjectives; the position occupied by adjectives in relation to nouns; adjectives followed by prepositions; deriving adjectives from nouns), the adverb (the comparative degree and the superlative degree of adverbs; types of adverbs and the position they occupy within the sentence; deriving adverbs from adjectives), the pronoun (the personal pronoun, the demonstrative pronoun, the possessive pronoun, the reflexive pronoun, the reciprocal pronoun, the indefinite pronoun, the relative pronoun, the emphatic pronoun) and the conjunction (coordinating and subordinating conjunctions) Syntax: "if" clauses; relative clauses; "wish" clauses; clauses with causative "have" and causative "get" The texts used as starting-points for revision and the teaching of new concepts deal with the following topics: *spending one's spare time (sports, outdoor activities, indoor activities, socializing) / holidays, vacations, trips / culture (books, music, exhibitions, the theatre, the cinema), celebrities (the road to fame, the price of success, celebrities as role-models) / the media (newspapers, magazines, television, the radio, computers and the Internet), the role played by advertising / the seasons, weather, the environment (animals, nature, pollution and its harmful effects, the importance of an eco-friendly attitude and its manifestations) / one's studies and career / elements of Canadian culture and civilisation* Oral communication: simulating instances of communication that the students would encounter in real life (e.g.: *asking for information while on a trip abroad, deciding upon the destination of a family vacation, being interviewed for a job, being interviewed for a scholarship at a prestigious university abroad etc.)* a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *career versus personal life, fame versus anonymity, books versus computers, studying at a Romanian university versus studying abroad, the harmful effects of deforestation versus its economic benefits, sedentary spare-time activities versus dynamic spare-time activities, circuses-a source of amusement or a site for cruelty? etc.* Written communication: writing one's CV and a letter of application with the purpose of obtaining a job in the field of geology in the future
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	Gălăţeanu-Fârnoagă, G., Comişel, E., *Gramatica limbii engleze pentru uz şcolar*, Editura Omegapress, Bucureşti, 1993 Lăcătuşu, T., *Essentials of English Syntax. Complex Structures*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Student's Book, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004 Vereş, G., Cehan, A., Andriescu, I., *A Dictionary of English Grammar*, Editura Polirom, Iaşi, 1998

ASSESSMENT METHODS	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	PALAEONTOLOGY 2	CODE: IG 2302

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	16	72	78	5	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Paul Țibuleac, PhD	Geology

PREREQUISITES	

OBJECTIVES	Achievement of the background for further paleontological research through the examination of the body structure and morphological features of the main major taxa with fossil records. Developing skills in fossil determination by using an algorithm in the observation and depicting of the specimens of the laboratory collection. Encouragement of personal opinion through the debating of several controversial aspects regarding systematics, equivocal features etc. Encouragement of the capacity for synthesis through the comprising of the fossil taxa significance in the referred structural-tectonic unit and through the correlation of the strata from the different sedimentary basins using the fossil records.
COURSE CONTENTS	Phylum *Mollusca*. Subphylum *Diasoma*: Classes *Rostroconchia, Scaphopoda, Bivalvia. Mollusca incertae-sedis:* Classes *Tentaculoidea* and *Hyolitha.* Phylum ***Arthropoda***: Subphylum *Trilobitomorpha* - Class *Trilobita.* Subphylum *Chelicerata:* Class *Merostomata.* Class *Arachnida*. Subphylum *Mandibulata*: Classes *Ostracoda, Cirripedia, Malacostraca.* Superclass *Myriapoda.* Superclass *Hexapoda.* Phylum ***Annelida***. Phylum ***Brachiopoda***. Phylum ***Bryozoa***. Phylum ***Echinodermata***: Subphylum *Asterozoa*. Subphylum *Homalozoa.* Subphylum *Blastozoa.* Subphylum *Crinozoa*. Subphylum *Echinozoa*. Phylum ***Hemichordata***. Phyum ***Chordata***. Subphylum *Cephalochordata*. Subphylum *Urochordata*. Subphylum *Conodontochordata*. Subphylum *Vertebrata*. Infraphylum *Agnata*. Infraphylum *Gnathostomata:* Superclass *Pisces*. Superclass *Tetrapoda*: Class *Amphibia*. Class *Reptilia*: Subclasses *Anapsida, Ichthyopterygia, Euryapsida, Archosauria, Lepidosauria, Synapsida*. Class *Aves* (*Archaeornites, Neornites*). Class *Mammalia*: Subclass *Prototheria (Monotreme).* Subclass *Eotheria.* Subclass *Allotheria.* Subclass *Theria*: Infraclass *Metatheria - Marsupialia.* Infraclass *Eutheria.* Subclass *Primates.* The evolution of man. Each major taxa is described using the following topics: general features of the living body; reproduction; morphology of the hard parts; the skeleton of the colonies (in the specific taxa); the internal and external sculpture; the structure and the chemical composition of the hard parts; elements of morphometry; systematics; evolution and biostratigraphical value; phylogenetical aspects; paleoecological significance; specific methods of research; the most important researchers of the referred taxon; publications.
PRACTICAL	The laboratory classes follow the illustration of the major taxa exposed in the lectures; this goal is possible using the reach collection of fossil and recent specimens which is held in the laboratory. There are exercises of depicting and determination of fossil records at the genus level. Also, several applications on morphometrical study, and two fieldtrips complete the practical class. The students can present an essay with additional data on the topics which were debated in the lectures or laboratories. Lp. 1. *Rostroconchia, Scaphopoda,* Lp. 2-3 *Bivalvia, Tentaculoidea* and *Hyolitha.* Lp. 4 *Arthropoda, Trilobita* Lp. 5 *Brachiopoda* şi *Bryozoa* Lp. 6-7 *Echinodermata.* Lp. 8 *Hemichordata*. Skeleton of the vertebrates (endoskeleton, exoskeleton). Lp. 9 *Pisces.* Lp 10-11 *Reptilia*. *Amphibia* Lp. 12-13. *Mammmalia.* Lp 14 *Primates.*
TEACHING METHODS	Lectures, lecture-debates, applications on complementary material. Specific field studies; following the patterns of the paleontological papers. Using questions and answers in controversial issues.

RECOMMENDED READING	
	Hanganu Elisabeta, Şuraru N., Griogorescu D. (1986). Paleontologie, Ed. Did- şi Ped. Bucureşti. Leakey R. (1995). Originea omului. Ed. Humanitas. Neagu Th., Lazăr Iuliana, Cârnaru P. (2002, 2003). Paleozoologia nevertebratelor. Vol. II, III, Ed. Univ. Bucureşti. Piveteau J. (1952-1969). Traité de Paléontologie. Vol. I-VII, Paris.

ASSESSMENT METHODS		
	Conditions	Compulsory attendance to the laboratory classes; passing the practical test at the end of the semester.
	Criteria	- Ability to depict the fossil specimens of the major taxa from the laboratory collection; the same exercise on several specimens at first sight; ability to observe similarities and differences between the fossil records of the major taxa; - Capacity of using the fossil significance in the referred structural-geological unit; capacity of strata correlation in the same area or between different sedimentary basins using the fossil records
	Way of evaluation	Written or oral examination.
	Formula of the final mark	0.3 mark received for the practical test + 0.7 marks received for the exams on the lectures

COURSE TITLE	SEDIMENTARY PETROLOGY 1	CODE: IG 2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Petru tefan, PhD	Geology

PREREQUISITES	Mineralogy; Physical geology

OBJECTIVES	The objective of this course is to familiarize students with the origin of sediments, the equilibrium in the Earth's crust, the depositional environments, mineralogy and petrography constituents of sedimentary rocks and the diagenesis of sediments.
COURSE CONTENTS	Weathering and Alteration of the Earth's Crust Depositional Processes and Environments Diagenesis of Sedimentary Rocks Textures and Structures of Sedimentary Rocks
PRACTICAL	Textures and Structures of sedimentary rocks: - Grain size of siliciclastic sediments - Grain size of claystones - Petrographical constituents of sedimentary rocks - Sedimentary texture - Sedimentary structures
TEACHING METHODS	Lecture

RECOMMENDED READING	Anastasiu N. (1987). Petrologia rocilor sedimentare, Ed. teh., Bucureşti. Atanasiu N. (1977). Minerale şi roci sedimentare, Ed. Teh., Bucureşti. Atanasiu N., Jipa D. (1983). Texturi şi structuri sedimentare, Ed. Teh., Bucureşti. Buzgar N. (2000). Petrologia rocilor sedimentare, Ed. Univ. Iaşi. Jipa D. (1987). Analiza granulometrică a sedimentelor, Ed. Acad., Bucureşti. Papiu C.V. (1960). Petrologia rocilor sedimentare, Ed. Acad., Bucureşti. Petreuş I. (1977). Petrologia rocilor sedimentare - curs litografiat, Iaşi. Rădulescu D., Atanasiu N. (1979). Petrologia rocilor sedimentare - Ed. Did. şi Ped., Bucureşti. Ştefan P. (1987). Petrologia rocilor sedimentare, lucrări practice, Ed. Univ., Iaşi

ASSESSMENT METHODS	Conditions	Attendance of practical classes
	Criteria	Project
	Way of evaluation	Report on the data obtained in the laboratory, Examination paper
	Formula of the final mark	40% evaluation during the semester + 20 % project + 40 % examination paper

COURSE TITLE	ENGLISH 2	CODE: IG 2305

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	P	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English 1

OBJECTIVES	By the end of the semester, - the students will have revised the syllabus of the previous year of study, will have acquired further notions of English morphology and syntax and will have added new words and phrases both to the main vocabulary of the English language, and to the specialized vocabulary used in their field of interest, through a series of texts and exercises with a higher level of difficulty than those used during the previous year - the students will have become familiarized with aspects of Canadian culture and civilisation
PRACTICAL	Morphology: the verb, the noun (collective nouns, summation plurals, nouns derived from verbs, composed nouns, nouns obtained through conversion from other parts of speech, nouns obtained though abbreviation*), determiners, pre-determiners and post-determiners, the numeral (multiplicative numerals, distributive numerals*), the preposition, the adjective, the adverb, the pronoun and the conjunction *new notions Syntax: the sequence of tenses; active voice / passive voice; direct speech / Indirect speech; affirmative sentences / negative sentences / interrogative sentences; "if" clauses; relative clauses; "wish" clauses; clauses with causative "have" and causative "get" The texts used as starting-points for revision and the teaching of new concepts deal with the following topics: *human rights, democratic values, the notion of responsibility, the notion of justice / tolerance and intolerance (discrimination, racism, xenophobia, extremism, terrorism), prejudices and stereotypes / interpersonal conflicts, cultural clashes, armed conflicts, the struggle for peace* Oral communication: simulating instances of communication that the students would encounter in real life (e.g.: *witnessing and reacting to an instance of racist behaviour, being part of a trial as a defendant, defence lawyer, prosecutor, witness, member of the jury or judge* etc.) a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *the death penalty – acceptable or unacceptable?, difference – a source of diversity or of dissension?* etc.
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	Gălăţeanu-Fârnoagă, G., *Limba engleză în conversaţie*, Editura Stiinţifică şi Enciclopedică, Bucureşti, 2000 Hulban, H., *Syntheses in English Morphology,* Perspectives of the English Language Series, 2, Editura Spanda, Iaşi, 2001 Lăcătuşu, T., *The Simple Independent Sentence*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Workbook, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004

ASSESSMENT METHODS	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	HYDROGEOLOGY	CODE: IG 2306

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Viorel Ionesi, PhD	Geology

PREREQUISITES	Mathematics; Physical Geology; Physics

OBJECTIVES	To familiarize students with the study of the hydrogeological phenomena connected to the formation and existence of ground-water in natural condition, as well as in exploitation conditions.
COURSE CONTENTS	1. The Global Water Cycle 2. The Hydrological Systems 3. Water Balance 4. Hydrogeological Characterization of Aquifers 5. Hydrodynamic Characterization of Aquifers 6. Properties of Aquifers (Porosity, Compressibility of Aquifer Skeleton, Compressibility of Water, Specific Storage, Specific Yield, Specific Retention, Storage capacity, Permeability, Transmissivity etc.) 7. Physic and Chemical Features of Ground-Water
PRACTICAL	Establishment of water balance for a hydrologic basin. Estimate of total reserve of ground-water. Establishment and interpretation of hydrogeological maps and cross-sections. Problems associated to determinations of proprieties of aquifers and the physical and chemical features of ground-water.
TEACHING METHODS	Oral presentation, debates.

RECOMMENDED READING	
	Baciu C.(2004). Hidrogeologie. Elemente teoretice şi aplicaţii practice. Casa Cărţii de Ştiinţă. Cluj-Napoca. Castany G. (1972). Prospecţiunea şi exploatarea apelor subterane. Ed. Tehnică, Bucureşti. Castany G. (1982). Principes et méthodes de l'hidrogeologie. Ed. Dunod-Bordas, Paris. Fetter C. W. (1994). Applied Hydrogeology, Third Edition, Macmillan College Publishing Company, New York. Gheorghe Al. (1975). Prelucrarea şi sinteza datelor hidrogeologice. Ed. Tehnică Bucureşti. Scrădeanu D., Gheorghe Al. (2007). Hidrogeologie generală. Ed. Univ. Bucureşti. Zamfirescu F. (1995). Hidrogeologie – dinamica apelor subterane. Ed. Univ. Bucureşti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x D + 0.5 x E

COURSE TITLE	GEOLOGICAL PHOTOINTERPRETATION	CODE: IG 2307

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	D + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Mihai Brânzilă, PhD	Geology

PREREQUISITES	Physical Geology; Topography; Sedimentary Petrology; Igneous Petrology; Structural Geology and Geological Cartography; Hydrogeology

OBJECTIVES	1. Aerial photographs in geologic interpretation and mapping. 2. Instrumentation and measurement.
COURSE CONTENTS	1. Interpretation of aerial photographs in ore deposit survey. 2. Interpretation of aerial photographs in petroleum geology. 3. Interpretation of aerial photographs in engineering geology.
PRACTICAL	1. The aerial photograph. 2. Factors that affect the photographic image. 3. Collating of photographs
TEACHING METHODS	Debating lecture, independent observation and problem spotting

RECOMMENDED READING	Denny C.S., Warren C., Donald H.D.(1968). A descriptive Catalog of Selected Aerial Photographs of Geologic Features in the United States, Washington. Drăghindă I. (1966). Aerofotografia în cercetările geologice, Ed.Tehnică Bucureşti. Grasu C. (1994). Geologie structurală, Ed.Tehnică Bucureşti. Hamblin W.K., Howard J.D. (1989). Exercises in Physical Geology, Macmillan Publishing Company, New York. Hodges C.A., Moore H.J. (1994). Atlas of Volcanic Landforms on Mars, U.S. Geological Survey Pap 1534, Washington. Williams R.S., Ferigno Jane (1995). Satellite image atlas of glaciers of the world, U.S. Geological Survey 1386 – c, Washington. Zegheru N., Albotă N. (1979). Introducere in teledetecție Ed.Ştiințifică şi enciclopedică, Bucureşti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional commitments (lectures and practical works).
	Criteria	Cumulative evaluation.
	Way of evaluation	During the semester and exam.
	Formula of the final mark	Up to 50 % D + 50 % E

COURSE TITLE	GEOLOGICAL FIELD WORK	CODE: IG 2406

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
		4		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Daniel Țabără, PhD	Geology

PREREQUISITES	Physical Geology; Palaeontology

OBJECTIVES	General objective: application of theoretical knowledge acquired during the courses and practical works of the first two years of study. Specific objectives: - the recognition of different types of rocks and minerals from the terrestrial crust. - the identification of geological formations from different area. - the drawing of sketches and geological cross-sections. - the recognition of geological structures: syncline, anticline, faults etc. - the identification of strata position in space with the help of the geological compass. - the sampling and the identification of fossil species: mollusc, vertebrate.
COURSE CONTENTS	
PRACTICAL	
TEACHING METHODS	Observation, demonstration, analysis, case study.

RECOMMENDED READING	
	Anastasiu N. (1987). Petrologia rocilor sedimentare, Editura Tehnică Bucureşti. Grasu C. (1997). Geologie structurală, Editura Tehnică, Bucureşti. Olaru L., Ionesi V., Țabără D. (2004). Geologie fizică. Editura Universității „Al. I. Cuza" Iaşi, 468 p. Rădulescu D. (1981). Petrologie magmatică şi metamorfică, Editura Didactică şi Pedagogică, Bucureşti, 366 p. Țibuleac P. (2006). Paleontologie, Editura Tehnopress, Iaşi, 366 p.

ASSESSMENT METHODS		
	Conditions	Participation to all field trip applications
	Criteria	Cumulative evaluation
	Way of evaluation	Oral examination
	Formula of the final mark	

COURSE TITLE	UNDERGROUND HYDRAULICS	CODE: IG 2407

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Mihai Remus aramet, PhD	Geology

PREREQUISITES	Mathematics; Physics; Physical Geology

OBJECTIVES	Student's introduction to the field of Underground hydraulics. The purpose of the course is to present and solve problems regarding the flow of fluids through porous environment.
COURSE CONTENTS	1. Rocks and fluids: physical phenomenon of rock – fluid interaction, porosity of rocks, saturation in fluids, fluids retention and creeping, permeability, transmission and diffusions in vuggy environments. 2. Classification and underground flow modelling: hydrodynamic charge, gradient and spectra of the flow, planar flow, radial-planar and spherical flow with free level and under pressure, temporary and permanent flow, conservative and non conservative flow, modelling of the flowing condition. 3. Plane flow through a porous environment: continuity equation, general equation of the flow, integration of the general equation during conservative and non conservative flow in permanent and temporary regime. 4. Plane-radial flow through a porous environment: continuity equation, general flow equation, integration of the general equation of the conservative flow in permanent and temporary regime.
PRACTICAL	Physical property of fluids and determination of porous - permeable environments. Applications and flow type examples.
TEACHING METHODS	Lectures, debates, original opinions, practical applications and case study.

RECOMMENDED READING	Albu M. (1986). Mecanica apelor subterane. Ed. Didactică şi Pedagogică, Bucureşti. Crețu I. (1983). Hidraulică general şi subterană. Ed. Didactică şi Pedagogică, Bucureşti. Zamfirescu M. (1995). Hidrogeologie. Dinamica apelor subterane, Ed. Univ. Bucureşti. Crețu I., Ionescu M. E., Stoicescu M., (1993). Hidraulica zăcămintelor de hidrocarburi. Editura Tehnică Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and tutorial)
	Criteria	Periodical and final evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x periodical test + 0.5 x exam result

COURSE TITLE	MINING WORKS	CODE: IG 2408

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	D, E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Maricel Răileanu, PhD	Geology

PREREQUISITES	Mining topography; Petrology; Mineralogy; Global tectonics

OBJECTIVES	- Knowledge of mining works used in prospecting activities and in the exploring and exploiting of solid mineral deposits. - coordinating the digging works in mining activities.
COURSE CONTENTS	General knowledge. Classification and description of mining works. Mining explosives and the ways in which to fire them. The emplacement of mining works. Digging methods for mining works. The support of mining works. The ventilation of mining works.
PRACTICAL	Knowledge of mining works by means of plates and slides. Knowledge of mechanized vehicles used in mining digging works by means of plates and slides. Calculation of mining pressures. Drawing graphs of the execution of mining works. Ventilation scheme used in mining works.
TEACHING METHODS	PowerPoint presentation of lectures.

RECOMMENDED READING	Almăan B. (1982). Exploatarea i valorificarea zăcămintelor de substane minerale utile solide. Ed. Did., Bucureti. Popa Gh. (1985). Foraj i lucrări miniere. Ed. Univ. “Al. I. Cuza", Iai.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional obligations (training and practical works)
	Criteria	Cumulative assessment
	Way of evaluation	Preliminary examination + final written examination
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	WELL DRILLING TECHNOLOGY	CODE: IG 2409

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professsor Mihai Remus aramet, PhD	Geology

PREREQUISITES	Mathematics; Physics; Physical Geology

OBJECTIVES	Students' introduction in drilling and the research activity related to oil rigs.
COURSE CONTENTS	1. Drilling technology (manually, percussion, rotary, top driving, with turbine, sliding, specials) 2. Drilling bits and core heads. 3. Bottom hole assembly (BHA). 4. Drilling fluids. 5. Drilling conditions. 6. Stratum – oil rig; pressure regime. 7. Borehole casing and tubing. 8. Controlled drilling. 9. Directional drilling 10. Horizontals wells 11. Difficulty and accidents in drilling operations. 12. Mechanical coring 13. Well drilling costs
PRACTICAL	Geological follow-up of the drilling wells: directional drilling, mechanical core analysis, lithostratigraphical correlation of wells, geological elaboration of maps and cross sections from the oil reservoir, programming well trajectory and drill log, preparation of the reparation and abandon of documents.
TEACHING METHODS	Explanations using functional lay-outs of the rotary drilling rigs. Lectures, debates and original opinion.

RECOMMENDED READING	Constantinescu M. (1970). Forajul sondelor adânci. Editura Tehnică, Bucureşti. Macovei N. (1985, 1987). Technologia forării sondelor (vol I-IV), Ploieşti. Tatu Gr. (1983). Carnet tehnic – Forarea sondelor. Ed. Tehnică, Bucureşti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional obligations (lectures and tutorial)
	Criteria	Periodical and final evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x periodical test + 0.5 x exam result

COURSE TITLE	SEDIMENTOLOGY AND STRATIGRAPHY 1	CODE: IG 3502

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M (D+C+E)	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Crina Miclău, PhD	Geology

PREREQUISITES	Physical Geology; Palaeontology

OBJECTIVES	The *Sedimentology and Stratigraphy* course gives you the possibility of analyzing the sedimentary rocks (but not only) at different temporal and spatial scales. *Sedimentology* teaches you to have a dynamic picture on sedimentary rocks in terms of sedimentary processes, sedimentary environments and their autocyclic and allocyclic controls. *Stratigraphy*, on the other hand, teaches you to correlate the products of sedimentary environments – sedimentary systems – which are finite in space and time at the larger scale of the sedimentary basins which have evolved over geological time on Earth.
COURSE CONTENTS	During the first semester we will focus on sedimentology. An actualistic approach will be employed, meaning that modern processes and depositional environments will serve as guides to interpreting ancient sedimentary deposits. It begins with the understanding that not all sedimentary processes or environments that existed in the past are well represented in the present. The students will learn how to interpret sedimentary rocks in a dynamic way. Among the discussed problems there will be: 1) the weathering products; 2) basics of fluid flow; 3) sediment transport; 4) from facies to facies successions and their interpretation in terms of sedimentary processes and sedimentary environments; 5) facies models; 6) the sedimentary environments in space and time – Walther's Law of facies distribution; 7) contemporary and ancient sedimentary environments (processes, products, controls, position in the sedimentary basins, 3D architecture).
PRACTICAL	The main target of Labs will be the facies analysis method as interpretation tool of lithological columns. Topics: 1) sedimentary facies (lithology, internal sedimentary structures, fossil content) as sedimentary process expression; 2) facies association as sedimentary environment expression; 3) facies succession as an expression of autocyclic and/or allocyclic control. Lots of practical exercises will be done on theoretic and real lithological columns. Quick Time Movies of bedforms obtained under laboratory conditions will be watched in order to understand the way of internal sedimentary structure development. There will be unannounced quizzes during laboratories, based on problems discussed during lectures.
TEACHING METHODS	Interactive presentation of the topic of the day, supported by graphic and photographic materials in PowerPoint

RECOMMENDED READING	Anastasiu N., Popa M., Roban R. (2007). Sisteme depoziționale, Ed. Academiei, 606 p. Collinson J.D., Thompson D.B. (1989). Sedimentary structures, Second Edition, Chapman and Hall, 207 p. Einsele G. (1992). Sedimentary Basins, Springer – Verlag, 626 p. Leeder M. (2006). Sedimentology and Sedimentary basins. From turbulence to tectonics, Blackwell Publishing, 592 p. Miclăuş Crina (2006). Introducere în sedimentologia siliciclastică, Ed. Junimea, 199 p. Reading H. G. – editor (1996). Sedimentary Environments: Processes, Facies and Stratigraphy; Third Edition, Blackwell Science, 688 p. Selley R.C. (2000). Applied Sedimentology, Academic Press, 521p. Walker R.G. şi James N.P. – editori (1992). Facies Models. Response to Sea Level Change, Geological Association of Canada, 409 p.

ASSESSMENT METHODS	Conditions	All the laboratory classes are compulsory, as well as the field trip (if organized). I strongly recommend you to participate to lectures and to read the topic of the day before the class in order to be able to discuss it. Do not wait for the exam session to read the lectures for the first time and get panicked!
	Criteria	An active participation to in-class discussions during the laboratory classes and the completion of all requested exercises and a potential sedimentological essay are minimal conditions which must be met. The number and quality of questions you will ask during laboratory classes and lectures will be considered a measure of your interest in this course.
	Way of evaluation	Verifications during the semester , laboratory tests, quizzes, and final examination (written)
	Formula of the final mark	0.5(0.4P+0.6D)+0.5(0.4P+0.6E)

COURSE TITLE	STRUCTURAL GEOLOGY AND GEOLOGICAL MAPPING 2	CODE: IG 3504

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	1	70	80	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dorin-Sorin Baciu, PhD	Geology

PREREQUISITES	Physical Geology; Palaeontology; Sedimentary and Metamorphic Petrology; Sedimentology and Stratigraphy

OBJECTIVES	The presentation of the crust deformations ordered in relation to the types of stresses generated by plate kinematics, from the continental level to the regional and local level, and the mapping of geological structures
COURSE CONTENTS	Structural geology- strike- slip faults, the great strike-slip of the crust, regional and local; the fold mechanisms, the particular geological structures, diapirs that can form anticlines, salt domes and other structures capable of trapping petroleum and natural gas; deformation analysis on structural levels, tectonic vertical component, vertical movements of the continental area, vertical movements and isostatical readjustment, the subsidence of the sedimentary basins, vertical movements in Romania, Romanian territory and tectonic plates.
PRACTICAL	Laboratory work objectives: introduction to methods of geological mapping of the primary structures of sedimentary rocks and igneous rocks. Cartographic representation of the overthrust nappe, mine galleries and their cartographic representation. Interpretations of bathymetric charts, geologic sections from drilling data, with examples of sedimentary basins. 3D reconstruction of the sedimentary basin based on seismic data. Geological project-structural geology map, lithostratigraphic column, tectonic sketch, geological sections and description of geological formations and structures of the project
TEACHING METHODS	Interactive presentation, debates

RECOMMENDED READING	Allen P.A. and Allen J.R. (2005). Basins analysis- Principles and Applications, 2nd edition, Blackwell Publishing 549 p. Brânzilă M. (2003). Cartarea şi cartografierea structurilor geologice, Ed. Univ."Al.I.Cuza"Iaşi, 180 p. Brookfield E. Michael. (2004). Principles of Stratigraphy. Blackwell Publishing, 340 p. Busby and Ingersoll (1999). Tectonics of Sedimentary Basins, Blackwell Publishing Grasu C. 1997- Geologie structurală. Ed. Tehnică. 244 p. Dinu C., Pauliuc S. şi Barus T. (1988). Geologie structurală, lucrări practice, Universitatea Bucureşti, 208 p. Einsele G. (1992). Sedimentary Basins: Evolution, Facies and Sediment Budget, 2nd edition, Springer-Verlag. Berlin 792 p. McClay K. (2006). Structural Geology for Petroleum Exploration, Nautilus Ltd, Geosience, 503 p.

ASSESSMENT METHODS		
	Conditions	Fulfilment of student obligations at lectures and laboratories
	Criteria	Cumulative assessment
	Way of evaluation	Practical and written exam
	Formula of the final mark	0.60 E + 0.40 P

COURSE TITLE	ENGLISH 2	CODE: IG 2405

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
	2			28	122	5	P	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Junior Teaching Assistant ANCA-LUISA VIUSENCO	Geology

PREREQUISITES	English 1

OBJECTIVES	By the end of the semester, - the students will have revised and deepened the concepts learned during the previous year of study and throughout the previous semester and will have enriched their vocabulary through exercises with a higher level of difficulty than those used during the previous semester - the students will have become familiarised with aspects of Australian culture and civilisation
PRACTICAL	Morphology: the verb, the noun, determiners, pre-determiners and post-determiners, the numeral, the adjective, the adverb, the pronoun, the preposition and the conjunction Syntax: the sequence of tenses; active voice / passive voice; direct speech / Indirect speech; affirmative sentences / negative sentences / interrogative sentences; "if" clauses; relative clauses; "wish" clauses;clauses with causative "have" and causative "get" The texts used as starting-points for revision and consolidation deal with the following topics: *advancements in science and technology and the ethical issues they generate (progress in medicine and genetics, artificial intelligence, the conquering of space) / important figures in the field of geology and their accomplishments, the importance of geology and its future as a science* 1. oral communication: simulating instances communication that the students would encounter in real life (e.g.: *being the interviewer or the interviewed in an interview with a famous figure from the field of geology, being part of the first human expedition to Mars* etc.) a debate on currently controversial issues, starting from the topics of the texts used as starting-points (listed above): e.g.: *cloning – acceptable or unacceptable?, artificial intelligence – a threat in the future?, lethal illnesses – will they be eradicated in 20 years' time?* etc. 2. written communication: short essays of opinion, letters, articles, descriptions of persons / objects / places, brief narrations of events
TEACHING METHODS	- interactive teaching based predominantly on inductive methods and the practising of what was taught through varied exercises (ranging from drills to role play); students will be offered as many opportunities of operating with the language themselves as possible - a balanced intertwining of the 4 communicative skills (Speaking, Reading, Listening, Writing), meant to shape the necessary competences for an effective communication (both oral, and written) in English: the ability to comprehend a text or a dialogue and to carry out the tasks attached to it; the ability to employ new words in contexts of one's own, the ability to use English in order to express opinions related to various topics etc. - individual activities, pair work and group work - the constant use of handouts and the use of multimedia whenever possible

RECOMMENDED READING	
	Gălăţeanu-Fârnoagă, G., *Limba engleză în conversaţie*, Editura Stiinţifică şi Enciclopedică, Bucureşti, 2000 Hulban, H., *Syntheses in English Morphology,* Perspectives of the English Language Series, 2, Editura Spanda, Iaşi, 2001 Lăcătuşu, T., *The Simple Independent Sentence*, Casa Editorială Demiurg, Iaşi, 2005 Soars J., Soars L., *New Headway Intermediate*, Workbook, Oxford University Press, Oxford, 2003 Thompson, A.J., Martinet, A.V., *A Practical English Grammar*, Oxford University Press, Oxford, 2004

ASSESSMENT METHODS	Conditions	Students are allowed to miss a maximum of two seminars, without having to motivate their absence and without their final grade being affected in any way.
	Criteria	Regular attendance and active participation in the seminars, a complete portfolio (containing handouts with exercises solved in class, various assignments as homework, written tasks meant to be carried out during the seminars), a project devised within a team and presented in front of the other teams, a mean of at least 50 points on the four tests (one per month) (formative evaluation)
	Way of evaluation	grades from 1 to 10
	Formula of the final mark	25%-regular attendance and active participation in the seminars+25%-the portofolio+25% -the group project+25%-the four tests

COURSE TITLE	ROCK MECHANICS	CODE: IG 3506

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		2		42	108	5	M (D + C)	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan Grinea, PhD	Geology

PREREQUISITES	Mathematics; Physics; Hydraulics; Hydrogeology; Petrology

OBJECTIVES	Improvement of theoretical fundaments and experimental concepts in order to understand the behaviour of rock massifs and geological structures under pressure. The response time is analysed and the general aspects of their behaviour at mechanical efforts are described. Listing the destructive and not destructive attempts for rock resistance.
COURSE CONTENTS	Physical properties of rocks. Water/clay interaction. Compacting – deformation stages and their analysis. Mechanical properties of light and heavy rocks; resistance attempts. Compacting – deformation stage of the rock massif. Rhaeology; elementary and complex unidirectional modules; anisotropy; flowing.
PRACTICAL	P.S.M. and P.S.I. (fire) regulations. Yielding of geotechnical samples. Establishing the physical parameters of state for light and heavy (± water) rocks. Compacting degree for incohesive rocks. Maximal and optimal natural humidity for compaction. Compressibility. Uniaxial compression and direct shearing. Establishing the clay elasticity module; effort distribution in the rock massif.
TEACHING METHODS	Lectures; debates; independent observations. *In situ* and laboratory experiments; case studies.

RECOMMENDED READING	Boțu N., Muşat V. (1998). Geotechnique. Ed. VENUS, Iaşi. Cristescu N. (1990). Mecanica rocilor. Ed. Şt., Bucureşti. Florea M.N. (1982). Mecanica rocilor. Ed. Did. şi Ped., Bucureşti. Muşat V. (2000). Mecanique des roches. Ed. "Gheorghe Asachi", Iaşi. Stamatiu M. (1962). Mecanica rocilor. Ed. Şt., Bucureşti. Vaicum Al. (1978). Studiul reologic al corpurilor solide. Ed. Acad. R.S.R„ Bucureşti. *** the STAS/STANDARD Collection, the G. Series

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and laboratory works)
	Criteria	Periodic and cumulative evaluation
	Way of evaluation	Oral exam + test + practical test
	Formula of the final mark	0,5 D + 0,5 C

COURSE TITLE	GEOTECHNICS	CODE: IG 3507

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		2		56	94	5	M (D + C)	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan Grinea, PhD	Geology

PREREQUISITES	Mathematics; Physics; Underground Hydraulics; Hydrogeology; Petrology

OBJECTIVES	Finding answers to different problems related to the civil engineering workings, during the stages of technical project and execution, in conditions of high quality, durability, safety, low cost and promotion of some ingenious technical solutions; Establishing relationships between different parameters of the rock (especially the relation between effort and deformation) and showing the correct values for a case study; offers the understanding of the relationships between different aspects of the mechanical behaviour of the rock massif in the presence of water, in smaller or larger quantities; develops the concerted application of the civil engineering and technical-ecological principles for different studies, analyses, projections and advises for settings in the construction working field for any category; Detailing the experimental methods which lead to different models of geomechanical behaviour and dimensioning methods; developing abilities for the applying of theory in order to solve some practical matters, similar to the researching and projecting requests.
COURSE CONTENTS	Identification, classification, state parameters; physical and hydraulic properties of the rocks; Mechanical properties of the rocks; destructive and non-destructive attempts concerning rock resistance; Tensions and deformations within the rock massif, settling phenomenon; Active and passive pressure of the soft rock massif; Rock breaking criteria; portent capacity; slope and sides stability, in natural or human modified environments.
PRACTICAL	Recommendations for the prevention and extinguishing of fire and for work protection; yielding, recognizing and forming geotechnical samples. Determining state parameters for the soft and hard rocks (+ water); packing degree and packing capacity of non-cohesive rocks; natural humidity, maximal and optimal, for compaction; plasticity limits; compressibility, monoaxial compression and direct shearing; establishing the elasticity degree for clays; the effort repartition within the rock massif and the calculation of soil compression; Calculation of the active and passive pressures on soft rock massifs; calculation for the field considering the limit state of the portent capacity; calculations of the stability safety for sides and slopes.
TEACHING METHODS	Lectures, debates; independent observations; laboratory experiments, case studies.

RECOMMENDED READING	Boţu N., Muşat V. (1998). Geotechnique. Ed. VENUS, Iaşi. Cristescu N. (1990). Mecanica rocilor. Ed. Şt., Bucureşti. Florea M.N. (1982). Mecanica rocilor. Ed. Did. şi Ped., Bucureşti. Muşat V. (2000). Mecanique des roches. Ed. "Gheorghe Asachi", Iaşi. Popa, A. et al. (1999). Geotehnica - caiet de lucrări practice, Ed. Univ. „Babeş – Bolyai", Cluj Napoca. Stamatiu M. (1962). Mecanica rocilor. Ed. Şt., Bucureşti. Stroia, Florica et al. (1998). Mecanica rocilor (Lutite-Rudite) - Caiet de lucrări practice, Ed. Univ. Bucureşti. Vaicum Al. (1978). Studiul reologic al corpurilor solide. Ed. Acad. R.S.R„ Bucureşti. *** the STAS/STANDARD Collection, the G. Series

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (course and practical classes)
	Criteria	Periodical and cumulative evaluation
	Way of evaluation	Practical exam + Final oral examination
	Formula of the final mark	0,7 (0,5 D + 0,5 E) + 0,3 P

COURSE TITLE	GEOLOGICAL AND ENVIRONMENTAL ENGINEERING	CODE: IG 3601

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M (D+C)	ROMANIAN

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan Grinea, PhD	Geology

PREREQUISITES	Rock Mechanics; Structural Geology; Hydrogeology; Petrology; Geotechnics

OBJECTIVES	The subject describes the behaviour of the rock massif of substructures, analyzes the slope stability and the general case of earth sliding. The static and dynamic action of the water related to the compacting velocity, the shearing resistance, the stability of the tailing heaps and the setting lakes is discussed. The active and passive pressure for the massif and the combinations are calculated. Geotechnical search for communication lines, art works, river dams and structures.
COURSE CONTENTS	Fundamental concepts of Environmental Geology. Natural physical systems. Base rock and the overstanding formation. "Dry" and "wet" field movements. Underground water action on the stability of the rock massif. The calculation of the slope stability and the basement field deformation. Charging capacity. Geotechnical search in civilian construction works. In situ improvement of geotechnical characteristics of the rock massif. Terrestrial crust and Geo-engineering of water reserves. Shore regions and regimes. Environmental management; field and geotechnical cadastral systematization
PRACTICAL	P.S.M. and P.S.I, (fire) geotechnical rules. Geotechnical exploration and interpretation of results. The calculation of the slope stability and of the charging and compacting capacities. Active and passive pressures of the rock massif. Effort distribution and calculation within the rock massif. The geotechnical study assembling (case study).
TEACHING METHODS	University lectures; debates; independent observation. *In situ* and laboratory experiments; case studies.

RECOMMENDED READING	Băncilă I. (1980). Geologie inginerească. Ed. Tehnică, Bucureşti. Bomboe P., Mărunțeanu C. (1986). Geologie inginerească. Ed. Univ., Bucureşti. Florica M.N. (1976). Alunecări de teren şi taluze. Ed. Tehnică, Bucureşti. loan V. (1991). Urbanism şi mediu. Ed. Tehnică, Bucureşti. Muşat V. (2003). Geotehnică. Ed. "Gh. Asachi", Iaşi. Păunescu M., Pop V., Silion T. (1982). Geotehnică şi fundații. Ed. Did. şi Ped., Bucureşti. Răileanu P. (1983). Geotehnică şi fundații (exemple de calcul). Ed. Did. şi Ped., Bucureşti. Răileanu P., Boți N., Stanciu A. (1986). Geologie-Geotehnică - Fundații. Ed. Inst. Politehnic, Iaşi. Silion T. (1994). Geotehnical Engineering (Laboratory works). Ed. Univ. Tehnice "Gh. Asachi", Iaşi.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (classes and laboratory works)
	Criteria	Periodic and cumulative evaluation
	Way of evaluation	Oral exam + test + practical test
	Formula of the final mark	Final mark for one semester of study x 0.5 + exam mark x 0.5

COURSE TITLE	SEDIMENTOLOGY AND STRATIGRAPHY 2	CODE: IG 3602

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94		M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Crina Miclău, PhD	Geology

PREREQUISITES	Physical Geology; Palaeontology; Petrography

OBJECTIVES	The *Sedimentology and Stratigraphy* course offers you the possibility of analyzing the sedimentary rocks (but not only) at different temporal and spatial scales. *Sedimentology* taught you to have a dynamic picture on sedimentary rocks in terms of sedimentary processes, sedimentary environments and their autocyclic and allocyclic controls. *Stratigraphy* will teach you to correlate the products of sedimentary environments – sedimentary systems – which are finite in space and time at the larger scale of the sedimentary basins which have evolved on Earth over geological time. Many details of the history of the Earth can be read into the rocks such as: sea level changes, climatic changes, tectonic events etc. Stratigraphy tries to order these events and to correlate the rocks based on different criteria (lithology, fossil content, age) and to reconstruct the global lithological column.
COURSE CONTENTS	Stratigraphy deals with the subdivision and correlation of sedimentary layers deposited locally, regionally and globally throughout geological time. General topics: 1) relative and absolute time; 2) dating technics; 3) the "laws" of Stratigraphy ; 4) Geologic Time Scale; 5) Principles of lithostratigraphy, biostratigraphy, chronostratigraphy, allostratigraphy and sequence stratigraphy; 6) principles of lithocorrelation, biocorrelation, chronocorrelation; 7) principles of stratigraphic classification (lithostratigraphic, biostratigraphic, chronostratigraphic units and unconformity-bounded units; 8) stratotypes; 9) stratigraphic succession models (trangressive, regressive and cyclic sequences); 10) basics of sequence stratigraphy.
PRACTICAL	Stratigraphy is important for the understanding of events that happened over geologic time and over a large area (sedimentary basin scale and larger). The main target of Labs is to understand the „deep" time and the control of allocyclic controls (tectonic, eustatic, climatic) on sedimentation. Thematic: - exercises of relative dating of processes/events on imaginary and real geological cross sections; - lithocorrelation and biocorrelation of imaginary and real geological columns; - solving graphic problems of absolute dating based on radiometric data; - the study of geochronological units (main tectonic, climatic and sea level changes; paleogeography and life evolution, stratotypes) - elements of sequence stratigraphy (parasequences and their bounding surfaces, trends in parasequence sets etc) Some Quick Time movies presenting elements of sequence stratigraphy will be watched in order to understand the sea level control on sedimentary column development and preservation). There will be unannounced quizzes during the laboratories based on problems discussed during lectures.
TEACHING METHODS	Interactive presentation of the topic of the day, supported by graphic and photographic materials in PowerPoint

RECOMMENDED READING	Brookfield E. B. (2004). Principles of Stratigraphy, Blackwell Publishing, 340 p. Emery D. and Myers K. - editori (1997). Sequence stratigraphy, Blackwell Science, 290 p. Filipescu S. (2002). Stratigrafie, Editura Presa Universitară Clujeană, 277 p. Grigorescu N. (2003). Stratigrafie şi geologie istorică. Partea I – Stratigrafie, Editura Ars Docendi, Bucureşti, 127 p. Koutsoukos E.A.M. – editor (2005). Applied stratigraphy, Springer, 488p. Nichols G. (2006). Sedimentology and stratigraphy, Blackwell Publishing, 356 p. Tătărâm Nița (1988). Geologie stratigrafică şi paleogeografie. Precambrian şi Paleozoic, Ed. Tehnică, Bucureşti. Tătărâm Nița (1984). Geologie stratigrafică şi paleogeografie. Mezozoic şi Cainozoic, Ed. Tehnică, Bucureşti. Saulea Emilia (1967). Geologie istorică, Editura Didactică şi Pedagogică, Bucureşti, 838 p.

ASSESSMENT METHODS	Conditions	All the laboratory classes are compulsory, as well as the field trip (if organized). I strongly recommend you to participate to lectures and to read the topic of the day before the class in order to be able to discuss it. Do not wait for the exam session to read the lectures for the first time and get panicked!
	Criteria	An active participation to in-class discussions during the laboratory classes and the completion of all requested exercises and a potential sedimentological essay are minimal conditions which must be met. The number and quality of questions you will ask during laboratory classes and lectures will be considered a measure of your interest in this course.
	Way of evaluation	Verifications during the semester , laboratory tests, quizzes, and final examination (written)
	Formula of the final mark	0.5(0.4P+0.6D)+0.5(0.4P+0.6E)

COURSE TITLE	APPLIED GEOPHYSICS	CODE: IG 3603

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan-Bogdan Hanu, PhD	Geology

PREREQUISITES	

OBJECTIVES	Presentation of the main issues of the geophysical prospecting activities from methods based on potential fields. Presentation of the essential parameters, of the physical processes this methods are based on, of the physical and mathematical basis of each method and of the methodology used in field measurements.
COURSE CONTENTS	Particularities and implications of the theory of basic interactions. Applicability field of the gravimetry and its goals. Types of the universal gravity attraction law. Gravity field and its components. Measurement of gravimetric anomalies. The Bouguer anomaly. Gravimetric reductions and their significance. Issues of gravity field metrology. Measurements of gravity gradients. Magnetostatic elements. Types of magnetization. Issues of geomagnetic field representation. Secular variation. Physical processes used in magnetic metrology.
PRACTICAL	Density of rocks and minerals. Direct and indirect methods of density measurement. Density contrast. Density variation causes. Types of topographic activities based on gravimetric prospecting. Factors that influence the balance of gravimetric elastic systems. Instrumental drift. Gravity measurements devices. Networks of gravimetric stations. Magnetic characteristics. Devices used in geomagnetic field metrology. Prospecting magnetic networks. Classification of magnetic anomalies.
TEACHING METHODS	Lecture with graphic presentation.

RECOMMENDED READING	Airinei, Şt. (1977). Geofizica pentru geologi, Editura Tehnică, Bucureşti. Constantinescu, L. et al. (1974). Prospecțiuni geofizice, vol.1, Editura Tehnică, Bucureşti. Fowler, C.M.R. (1993). The Solid Earth (an Introduction in Global Geophysics), Cambridge University Press. Ivan, M. (1994). Prospecțiuni magnetice, Editura Universității Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of student obligations (lectures and laboratories)
	Criteria	Cumulative evaluation.
	Way of evaluation	Grid test.
	Formula of the final mark	0.50 course subjects + 0.40 practical subjects + 0.10 course attendance

COURSE TITLE	METALLOGENY 2	CODE: IG 3604

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Dan Stumbea, PhD (course) Teaching Assistant Mitică Pintilei (practical)	Geology

PREREQUISITES	Crystallography; Mineralogy; Structural geology and geological cartography; Petrology (igneous, metamorphic, sedimentary); Metallogeny 1; Geochemistry

OBJECTIVES	Knowledge of: - relationship between the tectonic setting and metallogenic processes - genetic models of ore deposits related to specific tectonic settings - occurrence of ore deposits from abroad - occurrence of ore deposits from Romania - weathering of ore deposits
COURSE CONTENTS	I. Tectonic settings and metallogenic processes II. Plate tectonics and classification of ore deposits III. Ore deposits related to divergence plate boundaries III.1 Spreading and generation of the oceanic crust III.2 Metallogenic processes related to oceanic-type crust Metallogenic processes of ridges, oceanic basins and island arcs Ore deposits related to extensional transform faults III.3 Ore deposits related to intracontinental hotspots and anorogenic magmatism III.4 Ore deposits related to continental rifts IV. Ore deposits related to convergence plate boundaries IV.1 Ore deposits related to magmatic arcs IV.2 Ore deposits related to outer arc basins IV.3 Ore deposits related to back-arc and overthrust belts
PRACTICAL	I. Geochemistry of different genetic types of ore deposits: I.1 Igneous ore deposits I.2 Exogenous ore deposits I.3 Metamorphic ore deposits II. Metallogenic potential of rocks
TEACHING METHODS	Lectures, debates, learning through discovery

RECOMMENDED READING	Mârza, I. (1999). Geneza zăcămintelor de origine magmatică. Vol. 4 Metalogenia hidrotermală. Presa Universitară, Cluj-Napoca, 382 p. Sawkins, F., J. (1990). Metal Deposits in Relation to Plate Tectonics. Springer-Verlag, Tokyo, 461 p. Stumbea, D. (2007). Geologia zăcămintelor de minereuri. Casa Ed. „Demiurg", Iaşi, 209 p.

ASSESSMENT METHODS		
	Conditions	Active attendance to lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests
	Formula of the final mark	0.30 E + 0.70 D

COURSE TITLE	GEOLOGICAL FIELD WORK	CODE: IG 3605

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
		4		56	94	5	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Paul Țibuleac, PhD	Geology

PREREQUISITES	Palaeontology; Petrography (sedimentary, igneous, metamorphic); Stratigraphy; Geochemistry; Geology of the oil and coal deposits; Metallogeny; Other specific disciplines regarding the diploma paper topic

OBJECTIVES	Application of the knowledge achieved during the undergraduate stage into a geological research project under didactic assistance. Providing a scientific background for field research through the specific papers related to the diploma paper topic (geology of a structural unit, aspects of the natural and anthropic processes, geological information on boreholes and/or mines, basic data on a geological theory, outlook etc). Processing of the historical data underlining the controversial issues or less emphasized aspects about the researched topic. Following of the successive steps of field research: gathering the primary data (map drawing data, sampling, information from boreholes, assuming the results of several geochemical, geotechnical etc. analyses, other data gathered from the geological units), labelling, transport, custody of the samples. Learning of the laboratory techniques related to the analysis of specific samples. Usage of data processing, correlating the information inside the structural-tectonic unit and between different units, importance for the environment etc. Achieving the skill of verbal presentation on a scientific topic (an interesting and clear speech, using a technical vocabulary). Acceptance of opposite points of view and supporting personal opinions; emphasis of the less clear aspects or of the specific topics which will need more research data than the present information.
COURSE CONTENTS	Stratigraphy and palaeontology of the Miocene formations from the Moldavian Platform. Stratigraphy and palaeontology of the Mesozoic formations from the Rarău and Hăghimaş synclines (Eastern Carpathians). Ichtyofauna of the Oligocene flysch. Palinology and palinostratography of the Miocene from the Moldavian Platform, and also from other sedimentary basins. Miocene paleoflora. Paleoecology and the paleoenvironment. Geological Monitoring. Geological interpretation of geophysical data from the boreholes drilled up for oil and gas research (Black Sea, Transylvanian Basin etc). Geotechnical studies. Geology of the coal ores (the Comăneşti Basin, the Fălticeni area, the Țebea-Brad Basin). Sedimentology of the clastic formations from the Moldavian Platform and the Eastern Carpathian flysch. Map drawing of flysch formations.
PRACTICAL	Specific topics related to the diploma paper topic.
TEACHING METHODS	Conversation. Systematic observation. Demonstration. Application of the specific principle and method. Using questions and answers when dealing with controversial issues. Specific studies on the field.

RECOMMENDED READING	Clichici O., Stoici S. (1986). Cercetarea geologică a substanțelor minerale utile solide. Editura Tehnică, Bucureşti. Ionesi L. (1996). Geologia unităților de platformă şi a orogenului Nord-Dobrogean. Editura Tehnică Bucureşti Mutihac V. (1990). Structura geologică a teritoriului României. Eitura tehnică Bucureşti Săndulescu M. (1984). Geotectonica României. Editura tehnică Bucureşti.

ASSESSMENT METHODS		
	Conditions	Following all the steps of the research project.
	Criteria	Gathering of historical data about the diploma paper topic. Following an obvious and coherent plan in the elaboration and realisation of the geological research project. Presentation of new data about the researched topic/area. Usage of a technical vocabulary on the project and the quality of the graphics. Verbal presentation skills, the manner in which discussions on different topics related to the theme of the diploma paper are carried out etc.
	Way of evaluation	Practical work. Oral examination.
	Formula of the final mark	Evaluation of the project coordinator (0.25) + marks of the Bachelor Degree committee (0.75)

COURSE TITLE	MARINE GEOLOGY	CODE: IG 3606

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG3	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Petru tefan, PhD	Geology

PREREQUISITES	Physical geology; Sedimentary petrology; Hydrogeology

OBJECTIVES	Interpretation of the geological processes that occur in the marine environment Knowledge of physical, chemical and sedimentological parameters that control the marine environment Knowledge of the marine morphological units Sedimentological processes that occur in the marine environment
COURSE CONTENTS	Marine geology and links with other subjects in geology Physical and chemical properties of the marine waters Movements of sea water Morphology of the sea floor Marine sediments Ocean basins Black Sea: origin, evolution, sediments and resources
PRACTICAL	Interpretation of the physical and chemical data of marine waters Movements of sea water: currents, tides and waves Marine and ocean basins; morphology, structure, evolution
TEACHING METHODS	Lecture

RECOMMENDED READING	Papiu C. V. (1957). Sedimente marine actuale. Ed. Şt., Bucureşti. Pană Ioana (1987). Geologie marină. Ed. Univ. Bucureşti. Ross D. (1976). Introducere în oceanografie. Ed. Şt. şi Enciclopedică, Bucureşti. Thuman H. (1988). Introductory Oceanography, 5th Edition.

ASSESSMENT METHODS		
	Conditions	Attendance to laboratory classes
	Criteria	Fulfilment of student obligations
	Way of evaluation	Report on the data obtained in the laboratory; examination paper
	Formula of the final mark	20% laboratory activities + 80 % examination paper

COURSE TITLE	PALEOBOTANY AND PALYNOLOGY	CODE: IG 4701

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	D, E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Daniel Țabără, PhD	Geology

PREREQUISITES	Palaeontology

OBJECTIVES	Increasing of students' knowledge in the large area of Paleontology and Biostratigraphy with the systematic presentation and the evolutionary interpretation of fossil vegetal macro- and microorganisms under different conditions of paleoenvironment, throughout geological time. Biostratigraphycal and paleoenvironmental correlations.
COURSE CONTENTS	Morphological and systematic constitution of paleoflora with respect to the evolution of geological paleoenvironments. The morphological and taxonomic presentation of vegetal microscopic organisms from different geological formations and the biostratigraphycal and palynofacial correlation with other regions.
PRACTICAL	Recognition of different terrestrial plant fossils and determination of paleoenvironment conditions under which they developed. The microscopic study of fossil palynomorphs (acritarcha, chitinozoan, spores, pollen) and the settlement of paleoenvironmental and palynofacial conditions of evolution.
TEACHING METHODS	Lectures, debates, microscopy, PowerPoint presentation.

RECOMMENDED READING	Barbu V. (1962). Curs Paleontologie. Ed. Did. şi Ped., Bucureşti. Dragastan O., Petrescu I., Olaru L. (1980). Palinologie în aplicații geologice. Ed. Did. şi Ped. Bucureşti. Moret L. (1964). Manuel de Paléontologie végetale, Paris. Petrescu I. (1977). Paleobotanică, Universitatea Cluj. Petrescu I., Dragastan O. (1981). Plante fosile. Ed. Dacia. Saulea Emilia (1967). Geologie istorică. Ed. Did. şi Ped., Bucureşti.

ASSESSMENT METHODS	Conditions	Active participation to lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Examination
	Formula of the final mark	0.50 E + 0.50 P

COURSE TITLE	MICROPALAEONTOLOGY	CODE: IG 4702

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Viorel Ionesi, PhD	Geology

PREREQUISITES	Physical Geology; Palaeontology; Stratigraphy and Sedimentology

OBJECTIVES	The main objectives of the course are: 1. Providing students with the basic knowledge on microfossils; 2. Teaching students the basic approaches to the identification of microfossils.
COURSE CONTENTS	8. Micropalaeontology. Definition. Object of study. 9. The history of micropaleontological research 10. Calcareous nannoplankton 11. Foraminifera 12. Radiolaria 13. Conodonta 14. Ostracods 15. Otoliths 16. Mysid statoliths
PRACTICAL	Sampling and sample preparation techniques. Identification, using the optical microscope, of the main genera of microfossil groups.
TEACHING METHODS	Oral presentation, debates. Individual work with each student on the optical microscope during laboratory classes.

RECOMMENDED READING	Bucur I. I., Filipescu S. (1999). Micropaleontologia foraminiferelor. Ed. Presa Universitară Clujeană, Cluj-Napoca. Ionesi Bica (1982). Curs de Micropaleontologie. Univ. "Al. I. Cuza", Iaşi. Mészáros N., Ianoliu C., Strusievicz Elisaveta (1991). Nannoplancton (curs şi lucrări practice), Univ. "Babeş – Bolyai", Cluj-Napoca. Neagu Th. (1979). Micropaleontologie. Protozoare. Ed. Tehnică, Bucureşti. Neagu Th. (1989). Micropaleontologie. Metazoare. Ed. Tehnică, Bucureşti. Neagu Th. (2002). Paleontologia nevertebratelor. Vol I., Ed. Universității din Bucureşti. Şuraru N. (1983). Curs de Micropaleontologie. Univ. "Babeş - Bolyai", Cluj-Napoca.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x D + 0.5 x E

COURSE TITLE	PETROLEUM GEOLOGY	CODE: IG 4703

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	1	70	80	5	D, E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Daniel Țabără, PhD	Geology

PREREQUISITES	Subsurface hydraulics; Drilling geology

OBJECTIVES	Students' acquiring of current concepts concerning physico-chemical properties of petroleum and associate water, as well as the origin and genesis of petroleum, the generation, migration and accumulation of petroleum, the traps and the types of oil field. Concepts of systematic oil-bearing basins. Making the students well-acquainted with the concepts and practical aspects of petroleum geology.
COURSE CONTENTS	- Natural bitumen (definition, classification, the main bitumen types) - Origin of petroleum (hypothesis of organic and anorganic origin). The types of organic matter leading to petroleum genesis. Notions about kerogen. Main stages of petroleum and natural gas generating process (diagenesis, catagenesis, metagenesis). - Rocks source of petroleum (identification of rocks source, determination of maturation degrees of rock sources) - Reservoir rocks. Seal rocks. - The migration of petroleum (primary, secondary and tertiary migration). - Main types of trap for hydrocarbon. - Classification of hydrocarbon fields. - Sedimentary basins and oil-bearing basins.
PRACTICAL	Drawing of geological cross-sections using drilling data. Drawing of isopachyte maps on the basis of drilling data. Acquisition of physical and geological data through the mud-logging method. Use of specific software in drilling geology.
TEACHING METHODS	Lectures, debates, PowerPoint presentation.

RECOMMENDED READING	Beca C., Prodan D. (1983). Geologia zăcămintelor de hidrocarburi. Ed. Didactică şi Pedagogică, Bucureşti. Perrodon A. (1985). Géodynamique pétrolière. Genèse et répartition des gisements d'hydrocarbures. 2nd edition. Masson, Elf Aquitation. 385 p. Selley R. C. (1998). Elements of Petroleum Geology, 2nd edition. Academic Press, 470 p. Turculeț I. (1981). Geologia zăcămintelor de hidrocarburi. Ed. Univ. "Al. I. Cuza" Iaşi.

ASSESSMENT METHODS	Conditions	Active participation to lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Examination
	Formula of the final mark	0.50 E + 0.50 P

COURSE TITLE	PETROLIFEROUS SYSTEM ENGINEERING 1	CODE: IG 4705

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	1	70	80	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Mihai Remus aramet, PhD	Geology

PREREQUISITES	Mathematics; Physics and Physical Geology; Structural Geology; Well Drilling; Rock Mechanics; Petrology; Micropaleontology; Palynology; Hydraulics and Hydrogeology; Geophysical Survey; Geophysical Coring; Sedimentary basins modelling.

OBJECTIVES	Students' introduction to the research and evaluation activity of the petroliferous system.
COURSE CONTENTS	1. Petroliferous system: definition, subsystems, delimitation and classification. 2. Analysis methods for the generation and expulsion subsystem of the oil from the source rocks. a. Global analysis of sedimentary rocks that have the possibility of producing hydrocarbons. • Geochemical methods: combustion and pyrolysis (Rock-Eval). • Indirect methods: geophysical (seismic survey, well coring) and optical (Fission Track). b. Kerogen analysis. i. Geochemical methods (elemental analysis). ii. Spectrometry methods: Spin electron resonance, infrared absorption. iii. Optical methods: in transmitted light, in reflected light, in fluorescent light. c. Analysis of organic material extracts. i. Chromatographic analysis in liquid and gaseous phase. ii. Spectrometry analysis (mass spectrometry). iii. Molecular and isotopic analysis. 3. Simulation of the generation and expulsion of the oil source rocks. • Estimation, in geological time, of the oil rock source depth. • Reconstruction of the geothermal paleofields. • Temperature and pressure influence in geological time simulation. • Simulation methods (Lopatin-Waples, Tissot-Espitalie, Rochet, etc.). 4. Quantitative estimation of the oil and gas expulsed from source rocks. • Evaluation of the incertitude condition. • Geochemical evaluation using the mass balance method. Case study: the External Flysch of the Carpathians, the Transylvanian basin, the Black Sea self, etc.
PRACTICAL	Examples and case study regarding identification, characterization, modelling and petroliferous system estimation.
TEACHING METHODS	Lectures, debates, original opinions, practical applications and case study.

RECOMMENDED READING	Şaramet M. (2004). Ingineria sistemelor petrolifere, Partea I, (Analiza rocilor sursă). Ed. Univ. "Al. I. Cuza", Iaşi. Şaramet M. (2004). Sistemul petrolifer Histria. Ed. Univ. Junimea, Iaşi.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and tutorial)
	Criteria	Periodical and final evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 X periodical test + 0.5 X exam result

COURSE TITLE	MINERAL AND THERMAL WATERS	CODE: IG 4706

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Claudia Cirimpei	Geology

PREREQUISITES	General chemistry; Physical geology; Geology of Romania

OBJECTIVES	Knowledge of mineral and thermal water genesis, hydrogeological and hydrochemical features, economic evaluation.
COURSE CONTENTS	Types and classification for mineral and thermal water. General features of salt accumulation in natural waters. Genesis of mineral and thermal water in Romania. Types of water: mineral, radioactive, thermal.
PRACTICAL	STAS concerning laboratory analyses: Classification of water based on its use. Interpretation of analytical data: - biological; chemical, physical; - therapeutical properties of mineral amount; - drinking; - industrial; - pollution. The calculation of geothermal parameters: - mean of geothermal gradient - geothermal grade Resources of geothermal stocks.
TEACHING METHODS	Lectures, independent observation; case study.

RECOMMENDED READING	
	Airinei St. (1981). Potențialul geotermic al subsolului României. Ed. Şt. Encicl., Bucureşti. Cineti F.A.(1990). Resursele de ape subterane ale României. Ed. Tehnică, Bucureşti. Pricăjan A. (1972). Apele minerale şi termale din România. Ed. Tehnică, Bucureşti. Szabo A.(1972). Ape şi gaze radioactive din R. S. România. Ed. Dacia, Cluj – Napoca. Vernescu M. (1988). Ape minerale. Ed. Tehnică, Bucureşti.

ASSESSMENT METHODS		
	Conditions	Compulsory practical works and lectures
	Criteria	Practical tests and theoretical exam.
	Way of evaluation	Written exam
	Formula of the final mark	0.33 P + 0.33 D + 0.33 E

COURSE TITLE	QUATERNARY GEOLOGY	CODE: IG 4707

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Claudia Cirimpei	Geology

PREREQUISITES	Palaeontology; Paleobotany; Sedimentology; Physical Geology

OBJECTIVES	Knowledge of the main topics concerning the Quaternary: glaciers and the glacial phenomena. Climatic changes and paleogeography. The human evolution in terms of paleontological classification of life, geoarchaeology, consequences of human activity.
COURSE CONTENTS	The Quaternary ice age: - Paleogeography, features of Quaternary fauna and flora. - Glacial deposits from Romania. - Karst deposits. - Human palaeontology. Human activity. - First humans' control of fire.
PRACTICAL	Quaternary flora and fauna: "Al. I. Cuza" University of Iaşi, Museum of Palaeontology Geoarchaeology: Moldova Museum, Department of Archaeology; Archaeological sites from Moldova. Individual test.
TEACHING METHODS	Lectures, independent observation; case studies.

RECOMMENDED READING	Coltina-Girard J. (2001). Le few, l'homme préhistorique et le préhistorien. Ed. Univ. Bucureşti. Leakey (1996). Originea Omului. Ed. Humanitas, Bucureşti. Macarovici N. (1968). Geologia Cuaternarului. Ed. Didactică şi Pedagogică, Bucureşti. Necrasov Olga (1961). Stămoşii omului. Societatea pentru răspândirea ştiinţei şi culturii, Bucureşti.

ASSESSMENT METHODS		
	Conditions	Compulsory practical works and lectures
	Criteria	Practical tests and theoretical exam
	Way of evaluation	Written exam
	Formula of the final mark	0.33 P + 0.33 D + 0.33 E

COURSE TITLE	GEOENVIRONMENTAL MONITORING	CODE: IG 4801

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M (D + E)	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Corneliu Horaicu, PhD	Geology

PREREQUISITES	Physical Geology; Chemistry; Physics; Physics of the Earth; Mining Topography; Palaeontology; Geoinfomatics; Geostatistics; Crystallography; Geological Field Work; Mineralogy; Planetary Geology; Instrumental Methods in Geosciences; Structural Geology and Geological Cartography; Igneous Petrology; Sedimentary Petrology; Hydrogeochemistry; Hydrogeology; Mining Works; Well Drilling Technology; Metamorphic Petrology; Stratigraphy and Sedimentology; Metallogeny; Economic Geology; Geological and Environmental Engineering; Applied Geophysics; Volcanic and Seismic Hazards; Welling Geophysics; Geochemistry; Environmental Geochemistry; Biogeochemistry; Atmospheric Geochemistry; Geology of Romania.

OBJECTIVES	Knowledge of environmental factors and the evolution of their qualities. Knowledge of environmental monitoring and implementing of an integrate monitoring system. Grouping selection of information about environmental factors and the evolution of their qualities and their correlation. Development of the theoretical knowledge necessary for environmental preservation and protection, for impact assessment and for prominence of belongings on biodiversity health and proprietary.
COURSE CONTENTS	Environmental Integrate Monitoring. Air Monitoring; Water Monitoring; Soil and Subsoil Monitoring; Biodiversity Monitoring; Waste Monitoring; Health Monitoring; Environmental Management Systems (EMS).
PRACTICAL	Practical knowledge will be acquired in the laboratory and on the field (Environmental Protection of Iaşi County, Waste Deposit of Iaşi Municipality, Botanical Garden, Museum of Natural History etc.). The practical knowledge will be related to: air monitoring, water monitoring, soil and subsoil monitoring, fauna and flora monitoring, health monitoring, environmental management systems (EMS) etc.
TEACHING METHODS	Lessons, proceedings, laboratory and field experiments, analyses and case studies.

RECOMMENDED READING	Chifu, T., Murariu, Al. (1999). Bazele protecției mediului înconjurător. Ed. Univ. „Al. I. Cuza", Iaşi. Cojocaru, I. (1995). Surse şi produse de poluare, Editura Junimea, Iaşi. Duțu, M. (1998). Dreptul mediului, Editura Economică, Bucureşti. Horaicu, C. (2008). Monitorizarea integrată a mediului. Ed. TIPO MOLDOVA, Iaşi, 2004, Ediția II. Horaicu, C. (2007). Managementul riscului în industria extractivă, TipoMoldova Iaşi. Ionescu, C. (2000). Cum să construim şi să implementăm un sistem de management de mediu în conformitate cu ISO 14100, Editura Economică, Bucureşti. Macoveanu, M. (2003). Auditul de mediu, Editura Ecozone, Iaşi. Negulescu, M., Ianculescu, S., Vaicum, L., Bonciu, G., Pătru, C., Pătru, O. (1995). Protecția mediului înconjurător. Ed. Tehnică, Bucureşti. Rojanschi, V., Bran, F., Diaconu, G. (1997). Protecția şi ingineria mediului. Ed. Economică, Bucureştii Stugren, B. (1994). Ecologie teoretică. Ed. Sarmis, Cluj – Napoca. *** Directive, Regulamente europene, Legi, Hotărâri de guvern, Ordine, Ordonanțe privind protecția mediului www.anpm.ro – legislation

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations(lectures and practical work)
	Criteria	Cumulative assessment.
	Way of evaluation	Practical test + Written examination
	Formula of the final mark	Assessment during the semester and practical test x 0.5 + Mark received on the written examination x 0.5

COURSE TITLE	GEOLOGY OF ROMANIA 2	CODE: IG 4802

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	D + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Mihai Brânzilă, PhD	Geology

PREREQUISITES	Stratigraphy; Palaeontology; Structural Geology; Sedimentary, Metamorphic and Igneous Petrology; Metallogeny

OBJECTIVES	1. The synthesis of geodynamic processes, structural layout, lithostratigraphy and the natural resources of the structural units of the Carpathian Orogen and tectonic troughs. 2. Chronological presentation of the tectonic structures and processes from the structural units of the Carpathian Orogen and tectonic troughs.
COURSE CONTENTS	1. Presentation of the major structural units of the Carpathian Orogen: generalities and European geotectonic context. 2. Dacides: internal, Transylvanian, median, external and marginal. 3. Moldavides. 4. Intra-Carpathian tectonic troughs.
PRACTICAL	1. Macroscopical study of the petrographical and paleontological samples for each structural unit. 2. Analysis and interpretation of geological and structural maps of specific learned units, layout of geological profiles. 3. Mapping of synthetic lithostratigraphic columns through each structural unit.
TEACHING METHODS	Debating lecture, independent observations and problem spotting

RECOMMENDED READING	Balintoni I. (1996). Geotectonica terenurilor metamorfice din Romania, UBB Cluj Napoca. Bancila I. (1958). Carpatii Orientali Ed.Stiintifica Bucuresti. Bleahu M. (1983). Tectonica Globala, Ed.Stiintifica si Enciclopedica Bucuresti. Mutihac V. Ionesi L. (1974). Geologia Romaniei, Ed.Tehnica Bucuresti. Mutihac V., Stratulat Maria, Fechet Roxana (2004). Geologia Romaniei Ed. Did. Ped. R.A. Oncescu N. (1965). Geologia Romaniei , Ed.Tehnica Bucuresti. Sandulescu M. (1984). Geotectonica Romaniei, Ed.Tehnica Bucuresti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional commitments (lectures and practical works).
	Criteria	Cumulative evaluation
	Way of evaluation	During the semester and exam.
	Formula of the final mark	Up to 50% D + 50% E

COURSE TITLE	PETROLIFEROUS SYSTEM ENGINEERING 2	CODE: IG 4803

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	1	70	80	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Mihai Remus aramet, PhD	Geology

PREREQUISITES	Mathematics; Physics and Physical Geology; Structural Geology; Well Drilling; Rocks Mechanics; Petrology; Micropaleontology; Palynology; Hydraulics and Hydrogeology; Geophysical Survey; Geophysical Coring; Sedimentary basins modelling.

OBJECTIVES	Students' introduction to the research and evaluation activity of the petroliferous system.
COURSE CONTENTS	1. The subsystem of migration and accumulation of hydrocarbons. 1.1. Emphasis of the accumulation of hidrocarbons from the sedimentary basin: geological field work with compass, geochemical investigation, geophysical prospection, core analysis, mud logging sample analysis, analysis of geophysical charts (acoustic, nuclear, electrical) and GWD (gas while drilling). 1.2. Geochemical identification of the petroliferous system. 1.3. Hydrocarbon migration methods. 1.4. Phase change of the hydrocarbons during migration. 1.5. Hydrocarbon accumulation processes. 2. Hydrocarbons systematic accumulation. 2.1. Dry, wet gases and condensate accumulation. 2.2. Saturated and undersaturated oil accumulation. 3. Hydrocarbon accumulation modelling. 3.1. Geological modelling (separation of the reservoir rocks and establishing of the rock thickness, lithostratigraphic, structural maps, cross sections and OWC (oil - water contact) GWC (gas – water contact), GOC (gas-oil contact)). 3.2. Elaboration of the physical-chemical models (making maps and cross section with porosity and fluid saturation readings). 4. Geological accumulation estimation using genetical, volumetrical, probability and balance methods. 4.1. Dry gas accumulations. 4.2. Wet gas and condensate accumulation. 4.3. Saturated and undersaturated oil accumulation
PRACTICAL	Examples and case study regarding identification, characterization, modelling and petroliferous system estimation.
TEACHING METHODS	Lectures, debates, original opinions, practical applications and case study.

RECOMMENDED READING	Şaramet M. (2004). Ingineria sistemelor petrolifere, Partea I, (Analiza rocilor sursă). Ed. Univ. Al. I. Cuza, Iaşi. Şaramet M. (2004). Sistemul petrolifer Histria. Ed. Univ. Junimea, Iaşi.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional obligations (lectures and tutorial)
	Criteria	Periodical and final evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x periodical test + 0.5 x exam result

COURSE TITLE	COAL DEPOSIT GEOLOGY	CODE: IG 4805

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Claudia Cirimpei	Geology

PREREQUISITES	Sedimentary Petrology; Structural Geology; Palaeobotany; Well Geophysics

OBJECTIVES	Knowledge of factors that controlled the coal genesis, of the organic matter accumulation, palaeogeography, tectonic and economic factors. Coal basins from the Romanian territory.
COURSE CONTENTS	Coal genesis and coal deposits Features of coal deposits; facies of coal Coal deposits: stratigraphy, tectonics and classification Coal classification Coal Basin: example from Romania: Petro□ani Basin; Oltenia Basin.
PRACTICAL	The macroscopic and microscopic study of coal; petrography The technical parameters of coal: W; A; Q. Drillings and maps showing the quantitative and qualitative parameters of coal beds. The classification and the evaluation of coal resources.
TEACHING METHODS	Lectures, independent observation; case studies.

RECOMMENDED READING	Preda I., Turculeț I, Boidăluță Aurelia, Barus T., Andronovici Anca (1994). Geologia zăcămintelor de cărbuni. Ed. Universității Bucureşti. Petrescu I. et. al. (1987). Geologia zăcămintelor de cărbuni. Ed. Tehnică, Bucureşti.

ASSESSMENT METHODS	Conditions	Compulsory practical works and lectures
	Criteria	Practical tests and theoretical exam.
	Way of evaluation	Written exam
	Formula of the final mark	0.33 P + 0.33 D + 0.33 E

COURSE TITLE	WELLING GEOPHYSICS	CODE: IG 4806

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	UG4	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dan-Bogdan Hanu, PhD	Geology

PREREQUISITES	General geophysics

OBJECTIVES	The presentation of the complex of processes and activities necessary in order to obtain and interpret the geophysical diagraphy necessary for the determination of the characteristics of the geological structures crossed by auger holes and of the content of useful minerals and profile correlation used for structural maps.
COURSE CONTENTS	Research area of welling geophysics. Electrical log. The specific electric resistivity of rocks and minerals. Causes of the specific resistivity variations. Measurement of the specific resistivity of rocks in boreholes. Spontaneous potential and the induced potential. Methods of electrical log of apparent resistivity. Interpretation of the electrical diagraphies. Application field for the electrical log. Radioactive log. Physical and geological basics of the radioactive log methods. The natural radioactivity of the rocks. Induced radioactivity. Radioactive methods in borehole investigations.
PRACTICAL	Classification of the recording devices for the specific apparent resistivity. Action of the welling mud upon the sheets crossed by boreholes. Determination of collectors' thickness. Determination of the specific resistivity of the washed and invaded zones, of the real resistivity and of the diameter of the invaded zone, according to the data from various electrical log methods. Determination of the clay content in collecting rocks. Determination of the formation porosity. Caliper log. Formation dip logging. Measurement of the oriented deviation of the wells Instrument orientation in conducted drillings.
TEACHING METHODS	Lecture with graphic presentations.

RECOMMENDED READING	Babskow, A. (1980). Prospecțiuni geofizice (capitolul „Geofizică de sondă"), Editura Didactică şi Pedagogică, Bucureşti. Crânganu, C. (1988). Investigarea geofizică a găurilor de sondă, Editura Uniiversității „Al. I. Cuza" Iaşi. Crânganu, C. (1992). Investigarea geofizică a găurilor de sondă (Caiet de lucrări practice), Editura Universității „Al. I. Cuza" Iaşi. Neguț, A. (1987). Geofizica de sondă, Editura Universității Bucureşti.

ASSESSMENT METHODS	Conditions	Fulfilment of all student obligations (lectures and laboratories)
	Criteria	Cumulative evaluation.
	Way of evaluation	Grid test.
	Formula of the final mark	0.50 course subjects + 0.30 practical subjects + 0.20 project

II.14. DISCIPLINE RECORDS FROM THE CURRICULA (MASTER STUDIES)

THE FIELD OF GEOGRAPHY

Master: *TOURISM AND REGIONAL DEVELOPMENT*

COURSE TITLE	**REGIONS AND REGIONALIZATION WITHIN THE EUROPEAN UNION**	CODE: JTD1102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor EUGEN RUSU, PhD	Geography

PREREQUISITES	Geography of Europe, Geography of extra-European continents, Regional geographic research methodology

OBJECTIVES	Knowledge of criteria for regionalization Knowledge of institutions and programmes of regionalization in the EU. Acquiring analytical methods and sustainable regional development
COURSE CONTENTS	Concept and evolution in pan-European thinking. European Union. Construction, development, European institutions. The Council of Regions. Tasks, competences, programmes. The regions of Europe. Criteria and regional levels. The ESPON Programme. European regional differences. European border regions. Interregional connections. Principles of European regional development and integration. Regional development programmes. The evolution of regionalization in Romania. Investment and regional development in Romania differentiated. North-East Region. Perpetuate underdevelopment. The use of regional development programmes and EU facilities. Perspectives of regional development in Europe and Romania.
PRACTICAL	From idea to European awareness. Background and motivations in the process of EU enlargement. Regionalization of the EU. Nuts 2. Regional differences. EU Regionalization. Nuts 3. Regional differences Developed regions, disadvantaged regions. Benchmarking. Border regions. Local development. Arguments for and criticism against the regionalisation of Romania. Regionalisation proposed by UDMR. Presentation of Romania's regions. North-East Region. Problems of integration. European Regional Development Projects. Regional development projects in Romania. Draft Northern Region Sustainable Development – East. Perspectives of European regions.
TEACHING METHODS	Lectures, application (data interpretation)

RECOMMENDED READING	
	Oberdorf H. - *L'Union Europeene,* Edition PUG, Grenoble, 2007 Brunet R. – *Geographie Universelle*, Edition Belin – Reclus, Paris, 1995 Lamy P.- *L' Europe en premiere ligne*, Edition Seuil, Paris, 2002 Clapie M – Institutions ewuropeennes – Edition Flammarion, Paris, 2006 Feral P.A. – *Le Comite des regions de L'Union Europeene,* PUF, Paris, 2005 **www.europa.eu Uniunea Europeana[** **http://europarl.eu.int (Parlamentul European)** **http://ue.eu.int/index.htm (Consiliul Uniunii Europene)** **http://europa.eu.int/comm/index.htm (Comisia Uniunii Europene)** **http://europa.eu.int/cj/index.htm (Curtea Europeană de Justiție)** **http://www.eca.eu.int/ (Curtea Europeană de Conturi)** **http://ecb.int/ (Banca Centrală Europeană)** **http://eib.eu.int/ (Banca Europeană de Investiții)** **http://www.esc.eu.int/ (Comitetul Economic şi Social)** **http://www.cor.eu.int/ (Comitetul Regiunilor)**

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**TERRITORIAL MANIFESTATION FORMS OF THE TOURISTIC PHENOMENON**	CODE: JTD1103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	- pointing out the territorial manifestation forms of the world tourist activities by means of factors, forms, flows, regions etc. -understanding the role of touristic activities in the creation of socio-cultural models -estimating the impact of touristic activities on the environment.
COURSE CONTENTS	1.Touristic system 2. Spatio-temporal ratio of tourism 3. Representations and values of the touristic space 4. Typology of touristic spaces 5. Models, methods and means of spatial analysis of the touristic phenomenon.
PRACTICAL	Case studies (teams made up of 2-3 students) on: -morphology of a given touristic space -specialization of a touristic space -spatial dynamics of touristic flows -formation of regional touristic spaces -appearance, diffusion and evolution of touristic forms -spatial dynamics of tourism in different periods
TEACHING METHODS	Interactive methods, lecture; presentations using the video-projector.

RECOMMENDED READING	Muntele I., Iațu C., (2006) - *Geografia turismului. Concepte, metode şi forme de manifestare spațio-temporală*, Ed. Sedcom Libris, Iaşi. Lozato-Giotart J.P., (1993) - *Geographie du tourisme*, Masson, Paris. Cazes G., (1992) - *Fondements pour une geographie du tourisme et de loisirs*, Boreal, Paris Sacareau, I., Géographie du tourisme, Nathan, Paris, 2000 Bloc-Durrafour P., Mesplier A., (1992) – *Le tourisme dans le monde*, Bréal, Paris. Cazes G., (1989) - *Le tourisme international : mirage ou strategie d'avenir*?, Hatier, Paris. Dewailly J.-M., Flament E., (2000) – *Le Tourisme* **,** *SEDES*, coll. Campus / Analyse, méthodes, outils / Géographie, Paris**.**

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**TERRITORIAL DEVELOPMENT POLICIES IN THE EUROPEAN UNION**	CODE: JTD1105

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1	1			56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	Spatial organization; Theory of spatial planning, Economic geography

OBJECTIVES	Understanding the importance of regional development policies in the process of widening and deepening the EU; knowledge of regional development policies of the EU and of member states; creating abilities of critical analysis of national policies for regional development and geographical expertise skills for regional policy analysis; creating the spirit of interdisciplinary approach to regional development policies
COURSE CONTENTS	Territorial planning and regional development. Principles and objectives of planning and development policies; Construction of the EU; Construction of the regional policy of the EU; Construction of the regional development policy in Central-Eastern Europe: from the centralised system to flexible structures of territorial administration. Specific legislation; Construction of the regional development policy in Romania; Strategic operational programs. CSDTR-2030; PATN; PATJ; PATZ, PATZR, PUG; Development regions and structural funds; Intercommunality development association; Territorial development policies in other EU countries.
PRACTICAL	Creating and analyzing a database of legislation on territorial development policies; Using specialized sites in Romania and in the EU; Analysis of evolution scenarios of the European territory by 2030; Tools for territorial analysis and monitoring; Practical analysis of the PATN; PATJ; PATZ, PATZR, Analysing and commenting on the role of the Green Card of territorial cohesion; Analysing and commenting CSDTR-2030.
TEACHING METHODS	Interactive course based on the use of media

RECOMMENDED READING	Auphan, E.; Dézert, B. – L'Europe en mouvement. Populations, transports, aménagement, tourisme, Ellipses, Paris, 2003; Baudelle, G. ; Guy, C. – Le projet européen. Histoire, enjeux, perspectives, PUR, Rennes, 2004; Benedek, J.– Amenajarea teritoriului şi dezvoltarea regională, PU Clujeană, Cluj, 2004; Gauthier, A. – La construction européenne, Bréal, Rosnay-sous-Bois, 2005; Merlin, P.; Choay, F. – Dictionnaire de l'urbanisme et de l'aménagement, Puf, Paris, 2000; Merlin, P. - L'aménagement du territoire-Paris, Presses Universitaires de France, 2002 ; Renout, H. – Les institutions européennes, Paradigme, Caen, 2004; Rey,V. Et alii. – Atlasul României, RAO, Bucureşti, 2006; Wachter, S. (dir.) – L'aménagement en 50 tendances, Editions de l'Aube/DATAR, Paris, , 2002 ; Carta verde a coeziunii teritoriale ; Conceptul Strategic de Dezvoltare Spațială a României

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**STATISTICS AND DATA ANALYSIS**	CODE: JTD1208

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1	1			56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	Spatial organization; Theory of spatial planning

OBJECTIVES	Assimilation of the concepts, notions and basic terms of statistic and spatial analysis, of the analysis methods of statistic data, of the analysis methods for spatial structures; creating abilities of spatial expertise
COURSE CONTENTS	Statistical distribution and spatial distribution; Statistical concentration and spatial concentration; Spatial heterogeneity and statistical dispersion; General principles for the analysis of the relation between two quality characters; Analysis of a spatial contingency table; The relationship between two quantitative characters: correlation, regression. Application of regression in geography; Time series analysis: descriptive approach. Analysis of variance. General principle. Applications in geography. Inductive approach: optimal regionalization. Deductive approach: measuring the effect of a territorial organization.
PRACTICAL	Presentation of spatial and statistic analysis software; Practical applications of the central values; of the concentration values, of the contingency tables, of the spatial contingency tables, of correlation, of regressions, of the chronological series, of the variance analysis I; Spatial analysis, communication and cartography.
TEACHING METHODS	Interactive course based on the use of media

RECOMMENDED READING	Apetrei, M. ; Grasland, Cl. ; Groza, O., 2005 – Elemente de Statistică cu aplicații în Geografie(Elements of Statistics with Applications in Geography), UAIC, Iaşi; Charre, J., 1995 – Statistiques et territoire, GIP-RECLUS, Montpellier; Chemla, G., 1995 - Statistique appliquée à la géographie, Nathan, Paris; Chorley, R.; Haggett, P., 1970 - Socio-economic models in Geography, Methuen &Co Ltd, London; Cicéri, M.F. ; Marchand, B. ; Rimbert, S., 1977 - Introduction a l'analyse de l'espace, Masson, Paris; Dauphiné, A., 1987 – Les modèles de simulation en géographie, Economica, Paris; Haggett, P, 1965 – Location Analysis in Human Geography, Arnold, London; Jayet, H., 1993 - Analyse spatiale quantitative. Une introduction, Economica, Paris; Pumain, D.; Saint Julien, Th., 1997 – L'Analyse spatiale. Localisations dans l'espace, A. Colin, Paris; Pumain, D.; Saint Julien, Th., 2001 – Les interactions spatiales, A. Colin, Paris Sanders, L., 1989 – L'Analyse des données statistiques en géographie, Alidade-RECLUS, Montpellier

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**THEMATIC CARTOGRAPHY AND COMMUNICATION OF RESEARCH RESULTS**	CODE: JTD1209

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		2		48	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor GEORGE TURCANASU, PhD	Geography

PREREQUISITES	Human Geography (population and settlements), Territorial system, Urban structures and territorial cohesion, Geomatics

OBJECTIVES	Today the map has become a tool of research, a tool of power and persuasion. The insertion of mapping in increasingly diverse areas, but also its risk of vulgarity. This course aims at transmitting knowledge of the use of appropriate methods of thematic cartography, of map usage in a scientific approach. Practical works are designed to create technical competences and to ensure the mastery of cartographic concepts and approaches.
COURSE CONTENTS	Objectives and issues of thematic cartography – 1h. Types of thematic maps – 2 h. Making mapping products (univariate analysis, multivariate, building classes etc.)- 5 h Comments on the mapping product (simple regressions, causality and effects of size, residue analysis) – 4 h
PRACTICAL	Project issues – 2 h. Presentation of the programme Philcarto and its possibilities of graphic representation – 2 h. Output file – 22 h Projects – 4 h
TEACHING METHODS	Can we talk about sustainable development of developing regions of Romania? – Cartographic analysis

RECOMMENDED READING	* Béguin M., Pumain D., La représentation des données géographiques : statistique et cartographie, Paris, Colin, 1994. * Bertin J., Sémiologie graphique, Paris, Mouton, 1967. * Bertin J., La graphique et le traitement graphique de l'information, Paris, Flammarion, 1977. * Cuenin R., Cartographie générale, Paris, Eyrolles, 1972. * Hussy C., La carte, un modèle, un langage, Genève, Dépt de Géographie, 1998. * Monmonier M., Comment faire mentir les cartes ou du mauvais usage de la géographie, Paris, Flammarion, 1993

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**ANALYSIS OF TOURISTIC SYSTEMS: METHODS AND INSTRUMENTS**	CODE: JTD2301

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor IONEL MUNTELE, PhD	Geography

PREREQUISITES	General (physical and human) geography; Tourism Geography, Economic Geography, Touritic centres and regions

OBJECTIVES	Transmitting knowledge of the dynamics of touristic systems. Approach of the structure of touristic systems. Initiation in the methods and in the utilisations of the analytical instruments of the touristic systems.
COURSE CONTENTS	1.The processes of spatial touristification 2.The formation of the functional space of tourism 3.The analysis of the touristic supply 4.The analysis of the touristic demand 5.The analysis of the morphology of touristic spaces 6.The models of the spatial analysis of the touristic system 7.Criteria and variables of the spatial touristic typology
PRACTICAL	1.Case study project about the processes of touristification 2. Case study project about the models of the spatial analysis of the touristic system 3-Evaluation of the projects
TEACHING METHODS	Problematisation, heuristic conversation, explanation, exposition

RECOMMENDED READING	Muntele I. Iaţu C., Geografia turismului, Sedcom Libris, Iaşi, ed.2003, 2006 Cazes G., Fondements pour une géographie du tourisme et des loisirs, Boréal, Paris, 1992 Duhamel P., Le tourisme dans le monde, A.Colin, Paris, 1998 Stock M., Le tourisme. Acteurs, lieux, enjeux, Belin, Paris, 2003 Miossec J. M., Eléments pour une théorie de l'espace touristique, Cahiers du Tourisme, Aix en Provence, 1976 Lozato-Giotart J., Géographie du tourisme, Masson, Paris, 1991 Cuvelier P., Anciennes et nouvelles formes de tourisme, L'Harmattan, Paris, 1998 ***World Tourism Organization, Yearbook of tourism statistics, ed. 2001, 2006, Madrid ***Istituto Geografico di Novara, Atlante Anuario de Agostini, ed.1990-2000, Novara

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**SPACE ECONOMY APLICATIONS IN TOURISM**	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor RADU-IONUȚ DIMITRIU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	A better understanding of the functioning and socio-economic transformation of the area, the deepening of the diversity of phenomena and actors involved, mutations that occur in space by developing tourism
COURSE CONTENTS	Space and spatial economic analysis. Tourism planning policy. Theories and models. Distances and territories. Spaces and sites of interest. Space tourism strategies. Activities, tourism flows and implantations. Companies and territories. The role of public actors.
PRACTICAL	Theme studies presented in teams (2-3 students) will focus on: -examples of application of spatial models in tourism economy (case studies) -space configuration phenomena of interest -logical location of touristic activities in various areas.
TEACHING METHODS	Lecture, discussion, modelling.

RECOMMENDED READING	Auray J.P., Bailly A., Derycke P.H., Huriot J.M., (1994) - *Encyclopédie d'économie spatiale*, Economica, Paris. Haggett P., (1973), *L 'analyse spatiale en géographie humaine* . Paris : Armand Colin, collection U. Pumain D., St-Julien Th., 1997, *L 'analyse spatiale 1. Localisation dans l'espace* , Paris : Armand Colin Benko B. (dir.), (1990) - *La dynamique spatiale de l'économie contemporaine*, La Garenne-Colombes, Édition de l'Espace européen. Pumain D., St-Julien Th., (2001), *L'analyse spatiale 2. Les interactions spatiales*, Armand Colin, Paris. Georges Cazes, (1992) - *Fondements pour une géographie du tourisme et des loisirs,* Paris, Boreal. Jean-Michel Dewailly et Emile Flament, (2000) - *Le tourisme*, SEDES, Paris. The Sinclair and Mike Stabler, (1997) - *The economics of tourism*, Londres Routledge. Masahisa Fujita, Paul Krugman, and Anthony J. Venables, (2000) - *The Spatial Economy: Cities, Regions, and International Trade,* MIT Press, Cambridge, Massachusetts London.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**TOURISTIC RECOVERY OF THE MONTAINOUS AREAS BY USING ALTERNATIVE TOURISM**	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DAN LESENCIUC, PhD	Geography

PREREQUISITES	

OBJECTIVES	Presentation of the genesis of alternative tourism Emphasis on the main forms of expression Knowledge of techniques used in the practicing various forms of alternative tourism Analysis of the exploitation of mountainous areas through alternative tourism Identifying new locations for the practicing of alternative tourism in the Romanian Carpathians
COURSE CONTENTS	Weeks I-XIV: The origins and the evolution of various forms of alternative tourism Analysis of the main forms of expression: escalating (climbing) tourism, mountain tourism, speleological tourism, recreation and taking photos tourism, fishing tourism, tourism for the initiation in geology and palaeontology, winter sports tourism, tourism for learning about mountain vegetation and medicinal plants, tourism for practicing rafting, diving tourism, equestrian tourism, tourism for practicing yachting and skiing, off-road tourism, other types of extreme tourism. Practice opportunities in Romania. Ways to integrate various forms of extreme tourism in Romania. Identification, evaluation and exploitation of the Romanian Carpathian areas for the practicing of alternative tourism.
PRACTICAL	Using graphics, maps, photos, videos, for the analysis of the opportunities to practice alternative tourism. Knowledge of the equipment needed for the practicing of various forms of extreme tourism Practical application for initiation
TEACHING METHODS	Lecture, discussion, modelling – problematisation

RECOMMENDED READING	- Muntele I., Iațu C. (2003) – Geografia turismului, Edit. Sedcom Libris, Iaşi - Gabriela Tigu (2002) – Turismul montan, Edit."Uranus" - Frazzei Florian (1998) – Pledoarie pentru munte (Manual pentru turismul de munte) - Alexandru D., Neguț S., Istrate I. (1997) – Geografia turismului, Edit. Academiei, Bucuresti - Erdeli G.,Istrate I. (1996) – Potențialul turistic al României, Edit. Univ. din Bucuresti, - Armas I., Damian R., Verga M., Horvath I. (2004) – Saline integrate circuitului turistic: Praid, Tg.Ocna, Slanic Prahova, Cacica, vol. I, Edit. Cartea Universitară - Glăvan V. (2000) – Resursele turistice pe Terra, , Ed. Economică, Bucureşti - Bran Florina, Marin D., Simon Tamara (1998) – Turismul rural - model european, Ed. Economică, Bucureşti - Monografiile turistice ale masivelor montane din România - Revista „Munții Carpați" - Sacareau I., (2000) – Geographie du turisme, Nathan, Paris - Debarbieux B., (1995) – Tourisme et montagne, Economica, Paris

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**SUSTAINABLE TOURISTIC PLANNING OF THE TERRITORY**	CODE: JTD2409

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Gaining information on the sustainable touristic planning works worldwide (at the regional, national and international level), understanding the global view on the sustainability of the world tourism and the development of the sustainable touristic development problems in agreement with the tendencies and threats characterizing the world tourism.
COURSE CONTENTS	1.Concepts, sustainable touristic organization and planning principles 2. Sustainable planning process of a touristic resort. 3. Protected areas planning 4. Touristic planning of a zone. 5. Environment, heritage and sustainable touristic development. 6. Favourable laws for the implementation of touristic activities.
PRACTICAL	Projects and case studies on: Analysis of a touristic planning case on the basis of the sustainable development principles Strategies for the implementation of touristic activities and the decision taking factors. Devising of a sustainable touristic plan for a region (i.e. the North-East Region) The impact of touristic planning on the natural and socio-economic environment Touristic accessibility – determining factor in the development of touristic flows.
TEACHING METHODS	Interactive methods, lecture; presentations using the video-projector.

RECOMMENDED READING	Bălțărețu Andreea, (2003) – Amenajarea turistică durabilă a teritoriului, ED. Sylvi, Bucureşti. Iațu Corneliu, Muntele Ionel, (2006) – *Geografia turismului. Concepte, metode şi forme de manifestare spațio-temporală*, Ed. Sedcom Libris, Iaşi (ediția a II-a revăzută). Cocean Pompei, (1996) – *Geografia turismului*, Ed. Carro, Bucureşti. Păcurar Alexandru, (2000) – *Turismul internațional*, Ed. Presa Univeristară Clujeană, Cluj-Napoca. Neguț Silviu, (2003) – *Geografia turismului*, Ed. Meteor Press, Bucureşti. Lozato-Giotart J.-P., (1991) – *Géographie du tourisme*, Ed. Masson, Paris. Cândea Melinda, Erdeli G., Şimon Tamara, (2000) – *Potențial turistic şi turism*, Ed.Universității din Bucureşti. Dewailly Jean, Flament Michel, (2000) – *Le tourisme*, SEDES, Paris. Erdeli G., Istrate I., (1996) – *Amenajări turistice*, Ed.Universității din Bucureşti. Firoiu Daniela, (2002) – *Economia turismului şi amenajarea turistică a teritoriului*, Ed. Sylvi, Bucureşti. Glăvan V., (1996) – *Amenajarea turistică a teritoriului*, Ed. Fundației "România de mâine", Bucureşti

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**PROSPECTING NATURAL RESOURCES FOR SUSTAINABLE DEVELOPMENT**	CODE: JTD2301

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	6	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CONSTANTIN RUSU, PhD	Geography

PREREQUISITES	Tourism geography

OBJECTIVES	Acquiring knowledge regarding the role of natural resources in ensuring the sustainable development and territorial planning in the same perspective.
COURSE CONTENTS	1. Conceptual notions. Prospecting resources and geologic prospecting. Touristic resources and sustainable development. 2. Geologic resources. The role of useful mineral substances in the economic development. Environment degradation and ecologic reconstruction. Touristic importance of geologic structures and lithologic formations. 3. The touristic potential of relief. Genetic types of relief and their touristic capitalization. Relief, land use and sustainable development. 4. Touristic prospecting of the climatic component. Touristic potential of climatic elements. Mountainous climate and touristic development. Climatic risk phenomena. 5. Water resources and sustainable development. Hydrographic network and touristic constructions. Lakes of touristic interest. Nautical sports. Conservation of hydric resources. 6. Biotic cover and sustainable development. Prospecting the touristic resources of flora and fauna. 7. Soil resources. Ecologic agriculture and agro-tourism
PRACTICAL	The themes of the practical papers coincide with the general themes of the course. The elaboration of projects and thematic portfolios
TEACHING METHODS	Lectures, questioning, problem solving

RECOMMENDED READING	Dinu Mihaela (2005) – *Impactul turismului asupra mediului*, Ed. Universitara Bucuresti Glavan V. (2006) – *Potentialul turistic si valorificarea sa,* Ed. Fundatiei Romania de Maine Ielenicz M. –*Romania. Potential turistic*, Ed. Universitara Bucuresti Primack R. (2002) – *Conservarea biodiversitatii biologice,* Ed. Tehnica

ASSESSMENT METHODS	Conditions	Attending practical classes, carrying out the specific activities
	Criteria	Acquiring fundamental knowledge corresponding to the course themes and objectives
	Way of evaluation	Written exam
	Formula of the final mark	50% semester evaluation (practical activities, field and written evaluation) + 50% final exam.

COURSE TITLE	**PROSPECTION OF HUMAN RESSOURCES AND SUSTAINABLE DEVELOPMENT**	CODE: JTD2302

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	6	P	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor IONEL MUNTELE, PhD	Geography

PREREQUISITES	General (physical and human) Geography; Economic Geography, Geography of Population, Urban and Rural Geography, Social Geography

OBJECTIVES	An approach of the geographical study of the population centred around the concept of human resources and sustainable development Initiation into the methodology of human resources prospection Initiation in the spatial analysis of sustainable development
COURSE CONTENTS	1.Human potential 2.Human capital and the labour force 3.The indicators of the distribution and dynamics of human resources 4.Rapports between population and development 5.Indicators of human development 6.Geography and management of human resources
PRACTICAL	1.The prospection of human resources – statistical and cartographical approach 2.The analysis of the interactions between human resources and sustainable development– statistical and cartographical approach
TEACHING METHODS	1.Prelections with video proiections 2-Problematisation and heuristic conversation

RECOMMENDED READING	Ungureanu Al., Muntele I., Geografia populației, Sedcom Libris, Iaşi, 2006 Ungureanu Al. (coord), Moldova. Populația, forța de muncă şi aşezările umane în tranziție, Corson, Iaşi, 2003 Erdeli G., Dumitrache L., Geografia populației, Corint, Bucureşti, 2001 Bardet J.P., Histoire des populations d'Europe, Fayard, Paris, 1999 Wood B., Companion Encyclopedia of Geography, Routledge, Londra, 1994 Sylvie Brunel, 2004, Le développement durable, Paris, PUF Lester Brown, State of the World, Worldwatch Institute, annual 1984-2001 ***Population Bulletin, Population Reference Bureau, ONU, New York ***Population et Sociétés, INED, Paris ***Human Development Report, UNEP, ONU, New York

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**GLOBALIZATION AND REGIONAL DEVELOPMENT**	CODE: JTD2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	V	SEMESTER	9	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1	1			56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	Economic geography. Spatial organization. Geodemography

OBJECTIVES	Increasing the capacity of analysis and forecasting of regional dynamics; Improvement of the methodological abilities of multiscalar articulation research on spatial phenomena; Improvement of methodological abilities of synchronis/syngeic and dynamic/dyageic research of territorial structures
COURSE CONTENTS	The territorial dynamics and fundamental processes in the contemporary world: integration and fragmentation. Historical development of ideas and practices focused on human progress and social development; Historical development of processes leading to the current state of globalization – Spatial dimensions; Actors and processes of mondialization and of regionalization; Evolution of the spatial development policies in the world; Globalization; Metropolization; Modern states between global and regional; The consequences of globalization and regional responses; "Regions that win" and regions that lose; Administration of contemporary territorial dynamics.
PRACTICAL	Bibliographic analysis of the globalization process and of the regionalization process; Cartographic analysis of globalization. Territorial regionalizing/fragmenting cartographic materials; Globalization and regionalization in political speeches. The study of globalization actors: transnational companies, OMC, global cities; Graphical method in the globalization and regionalization analysis; Global, national and regional development programs: evolution and results; Debate: local and regional communities in the globalization context.
TEACHING METHODS	Interactive course based on the use of media

RECOMMENDED READING	S. Cordelier (dir.) – L'Etat du monde, Paris, 1980-2005 ; Dicken, Peter, 2003 - Global Shift: Reshaping the Global Economic Map in the 21st Century, London, Thousand Oaks, New Delhi: Sage Publications; A. Gamblin/L. Carroue (dir.) – Images economiques du monde, Paris, 1973-2005;Groza, O. (2000) – Geografia industriei, Editura UAIC, Iaşi ; I. Muntele, C. Iatu – Geografie economica, Bucuresti, 2002; Johnson, RJ, Taylor PJ, Watts, MJ (1996) – Geographies of Global Change, Blackwell, Oxford; Murray, WE (2006) – Geographies of Globalization, Routledge, London; Paulet, JP (1998) – Les régions à l'heure de la globalisation, Armand Colin, Paris ; Paulet, JP (1998) – La mondialisation, Armand Colin, Paris ; *** Atlas de la mondialisation, 2007, Presses des Sciences Po, Paris

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**RURAL SPACES AND REGIONAL DEVELOPMENT**	CODE: JTD2406

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	6	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MARINELA ISTRATE, PhD	Geography

PREREQUISITES	General (physical and human) geography; Urban and rural geography

OBJECTIVES	An approach of the spatial structures of the rural areas. Transmitting knowledge of the relationships between rural space problematics and regional development.
COURSE CONTENTS	1.Spatial structures of the rural areas 2.Disparities in rural areas 3.Methods of investigations of the spatial structures and disparities in rural areas 4.Rural space and poverty 5.Periurbanisation and counterurbanisation in the contemporary rural areas 6.The local/regional rapports into development problematics 7.The role of the local communities in the regional development
PRACTICAL	1.The elaboration of a study case project about one of the rural areas of Romania or of the European Union 2.The evaluation of the projects
TEACHING METHODS	Explanation, exposition, problematisation, heuristic conversation

RECOMMENDED READING	Bonnamour, J., Géographie et campagnes, ENS Fontenay-St.Cloud, 1993 Lebeau, R., Les grandes types de structures agraires dans le monde, Masson, Paris, 1979 Mazoyer, M., Roudart, L., Histoire des agricultures dans le monde, Seuil, Paris, 1997 Ilbery, B., The geography of Rural Change, Longman, London,1998 Gillardot, P., Géographie rurale, Ellipses, Poitiers, 1997 Bonnamour, J., Géographie rurale, Masson, Paris, 1993 Bonnamour, J., Agricultures et campagnes dans le monde, SEDES, Paris, 1996 R.Chapuis, P.Mille, Systemes agricoles dans le monde, A.Colin, Paris, 2001 J.P. Diry, Les espaces ruraux, Sedes, Paris, 1999 ****Larousse agricole , ed.2002

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**URBAN STRUCTURES AND TERRITORIAL COHESION**	CODE: JTD2407

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		64	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor GEORGE TURCANASU, PhD	Geography

PREREQUISITES	Human Geography (population and settlements), Territorial system, Urban structures and territorial cohesion, Geomatics

OBJECTIVES	- The basic characteristics of the evolution, structure and spatial dynamics of urban areas - The characteristics and the organization of settlement systems - Highlighting the key features of territorial systems - Highlighting of key parameters of regional development - Emphasizing the role of the network of settlements in setting up a territorial system - Specifying the basic features of a territorial system in the context of sustainable regional development
COURSE CONTENTS	I: Territorial systems vs. space systems. II: Homogeneous territorial systems vs. heterogeneous territorial systems. The concept of region III: The role of centrality and functional specialization in the urban hierarchy IV: The role of centrality and functional specialization in the urban hierarchy. Monocentrality vs. polycentrality V: The role of centrality and functional specialization in the urban hierarchy. Poles, axes, regions of development VI: Time in territorial systems. temporality and remnant VII: Time in territorial systems – transient. Systemgenesis and de-systemgenesis VIII: Verification IX: Time in territorial systems – resilience in territorial systems X: The taxonomy of territorial systems. Local systems XI: The taxonomy of territorial systems. Intermediate systems (regional / national) and the global system XII: European programmes XIII: Models and statistical modelling in regional geography XIV: Trans-disciplinary approaches to regional science XV: The spatial logic of territorial systems. Instead of conclusions XVI: Verification
PRACTICAL	Week 1 - the presentation of the Thematic Mapping Philcarto. Establishing a fund to map Week 2-3 - building a database and testing it Week 4-7 - the development of cartographic representation aimed at regional scale analysis Week 8 - practical work aimed at demonstrating the skills acquired by students through practical work Week 9 - the geographical location of urban settlements Week 10-11 - and mapping urban areas their influence (Thiessen polygons, spatial interaction models used in urban geography) Week 12 - mapping of urban systems Week 13 - dependent variable / independent variable – the practical work of quantitative geography Week 14 - indicators of the concentration of the population (Lorenz-Gini) Week 15 - urban hierarchy (rank size relationship) Week 16 - practical work aimed at demonstrating the skills acquired by students through practical work
TEACHING METHODS	Exposition, conversation, modelling, description

RECOMMENDED READING	GROZA O. (2003) – Bazele teoretice ale planificării teritoriale, Universitatea „Alexandru Ioan Cuza" Iaşi HALL P., PAIN K. (2006) - The Polycentric Metropolis, Eartscan, London-Sterling VA, Londra IANOŞ I. (1987) – Oraşele şi organizarea spaţiului geografic, Ed. Academiei, Bucureşti IANOŞ I., HUMEAU J.-B. (2000) - Teoria sistemelor de aşezări umane, Ed. Tehnică, Bucureşti MORICONI-EBRARD F. (1993), L'Urbanisation du Monde, Anthropos, Paris MORICONI-EBRARD F. (2000), De Babylone à Tokyo Les grande agglomération du Monde, OPHRIS, Paris MUMFORD L. (1961) – The city in history – its origins, its transformations and its prospects, New York

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**COOPERATION, PROMOTION AND CROSS-BORDER TOURISM DEVELOPMENT MODELS**	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor RADU-IONUȚ DIMITRIU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	A better understanding of the functioning and socio-economic transformation of the border area, deepening the diversity of phenomena and actors involved in generating cross-border tourism, mutations that occur on the border area through the development of tourism.
COURSE CONTENTS	Charter of regions. Cross-border and border measures to promote tourism. Forms of cross-border tourism. The institutional framework for implementing sustainable development measures in border tourism. Strategies for developing cross-border tourism. Valuing natural and cultural heritage. Border tourism in Europe. Border tourism in the world.
PRACTICAL	Background of draft-border tourism in the Joint Operational Program 2007-2013 Hungary-Slovakia-Romania-Ukraine. Structural Funds through the European Neighbourhood and Partnership Project to promote tourism and economic development of two twin cities in two border regions. Project to promote tourism and economic development of two border regions.
TEACHING METHODS	Lecture, discussion, modelling.

RECOMMENDED READING	Muntele I., Iațu C., (2006) – Geografia turismului. Concepte, metode şi forme de manifestare spațio-temporală, Ed. Sedcom Libris, Iaşi. Lozato-Giotart J.P., (1993) – Geographie du tourisme, Masson, Paris. Cazes G., (1992) – Fondements pour une geographie du tourisme et de loisirs, Boreal, Paris Sacareau, I., Géographie du tourisme, Nathan, Paris, 2000 Bloc-Durrafour P., Mesplier A., (1992) – Le tourisme dans le monde, Bréal, Paris. Cazes G., (1989) – Le tourisme international : mirage ou strategie d'avenir?, Hatier, Paris. Dewailly J.-M., Flament E., (2000) – Le Tourisme **,** *SEDES***,** coll. Campus / Analyse, méthodes, outils / Géographie, Paris**.** Dewailly J.-M., (2006) – Tourisme et géographie entre pérégrinité et chaos?, Ed. L'Harmattan, Paris.

ASSESSMENT METHODS		
	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

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COURSE TITLE	**EVALUATION AND ANALYSIS OF REGIONAL DISPARITIES**	CODE: JTD2409

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MARINELA ISTRATE, PhD	Geography

PREREQUISITES	General (physical and human) geography

OBJECTIVES	Initiation in evaluating and analyzing regional disparities. Initiation in mapping and interpreting regional disparities.
COURSE CONTENTS	Components of the analysis of regional disparities. Social equality and inequality. Space equity and inequity. Centrality and accessibility in the study of regional disparities in the EU. Importance of the urban-rural relations in the study of regional disparities in the EU. Measurement of regional disparities. Indicators of regional disparities. Socio-economic disparities. Socio-cultural disparities. Disparities generated by the use of manpower in the EU. Disparities generated by the life quality in the EU. Structural funds and regional disparities in the EU. The role of globalization in analysing regional disparities. Graphic and cartographic interpretation of regional disparities.
PRACTICAL	Collecting information on one of the parameters generating regional disparities. Their analysis and interpretation.
TEACHING METHODS	Speech, debate, modelling – issues. Speech held with the help of the overhead projector. Debate.

RECOMMENDED READING	Iaţu C., Muntele I., Geografie economică, Economica, Bucureşti, 2003 Sandu D., Spaţiul social al tranziţiei, Polirom, Iaşi, 1999 Sandu D., Dezvoltare comunitară. Cercetare, practică, ideologie, Polirom, Iaşi, 2005 Benko G., La Science Regionale, PUF, 1990 Giraud P-N., L'inégalité du monde, Gallimard, 1996 Cardebat J-M, La mondialisation de l'emploi, La Découverte, 2002 Lévy J., Europe.Une géographie, Hachette, 1997 Schiff M., Regional Integration and Development, Oxford Univ.Press, 2003 ***World Population Data Sheet, PRB, ONU, New York ***World Economic Situation and Prospects, anual, ONU ***World Economic and Social Survey, anual, ONU

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**POLITICAL GEOGRAPHY IN THE CONTEXT OF SUSTAINABLE DEVELOPEMENT**	CODE: JTD1211

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor IONEL BOAMFA, PhD	Geography

PREREQUISITES	

OBJECTIVES	Familiarizing students with complex problems that the attempt at explaining political and geographical phenomena raises. Transmission of the basic issues related to the development of relations between human society and its life, highlighting the main politico-geographical features of the state, territories with an abnormal political status, border areas and core-capital. Highlighting of geopolitical importance of the Planetary Ocean. Presentation of the main organizations worldwide and the most important political supranational organisations. Removing the spotlight on the evolution of democracy in the world. Highlighting elements of electoral geography.
COURSE CONTENTS	I Object of study of political geography II Geopolitics III Geostrategy IV Personal space and territoriality V Perceptions of the political world VI Political geography of states and political borders VII Internal administrative organization. Unitary states, regional states, federal states. VIII Political geography of the Ocean. IX International organizations X Evolution of democracy in the world. XI Notions of electoral geography.
PRACTICAL	1. Political-geographical analysis of the territories inhabited by Romanians. 2. Political-geographical analysis of Central-Eastern Europe, and some areas with outbreaks of conflict: the Middle and Near East, Sudan and the Horn of Africa, Central and Southern Asia and the Korean Peninsula. 4. Analysis of electoral behaviour in the Danubian Principalities (1831-1862) / Romania (1862-2007) and ECSC / EEC / EU (1952-2007). 5. Multivariate analysis of political geographical factors using statistical methods
TEACHING METHODS	Lectures with video proiector Heuristic conversation and problematisation

RECOMMENDED READING	I. Boamfă, A. E. Stan (2008) – *Parlamentul European. Evoluție. Structură politică. Alegeri europarlamentare*, Editura PIM, Iaşi; V. Bodocan (1999) – *Geografie politică*, Ed. Presa Universitară Clujeană, Cluj-Napoca; G. Corna Pellegrini, Elena Dell'Agnese (1995) – *Manuale di geografia politica*, Nuova Italia Scient., Roma; A. Ilieş (1999) – *Elemente de geografie politică*, Editura Universității, Oradea; Y. Lacoste (1982) – *La géographie, ça sert d'abord à faire la guerre*, Maspéro, Paris; J. Lévi (1990) – *Géographie du politique*, Presses Fond. Nat. Sciences Politiques, Paris; Ch. Vandermotten (1997) – *Géographie politique,* Presses Universitaires de Bruxelles, Bruxelles; *** (2005) – *Enciclopedia Uniunii Europene*, Ed. Meronia, Bucureşti;

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Active participation in the laboratory activities. Making logical correlations between the knowledge acquired during the semester, consistent expression, use of appropriate terminology, proper valuation of cartographic materials.
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	Evaluation of participation in the laboratory activities 50% Answers at the final examination 50%

COURSE TITLE	**EVALUATION METHODS OF THE HUMAN PRESSURE ON THE TERRITORY**	CODE: JRA1209

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		1		28	47		P	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor IONEL MUNTELE, PhD	Geography

PREREQUISITES	General (physical and human) Geography; Geography of Population

OBJECTIVES	An approach of the problematics of the spatial distribution of the population and of its complex causality. Initiation into the multivariate analysis of the human-nature relationships Initiation into the cartography of the human pressure
COURSE CONTENTS	1.Spatial study of the population 2.The relativity of the population density 3.The causality of the territorial disparities of human settlement 4.The dynamics of human pressure 5.Methods and instruments of human pressure study 6.The importance of the study of human pressure for territorial diagnosis and prognosis
PRACTICAL	1.The elaboration of a case study project about the human pressure in one of the regions, at local, zonal and regional level 2.Evaluation of the projects
TEACHING METHODS	Explanation, problematisation, heuristic conversation

RECOMMENDED READING	Ungureanu Al., Muntele I., Geografia populației, Sedcom Libris, Iaşi, 2006 Ungureanu Al. (coord), Moldova. Populația, forța de muncă şi aşezările umane în tranziție, Corson, Iaşi, 2003 Erdeli G., Dumitrache L., Geografia populației, Corint, Bucureşti, 2001 Bardet J.P., Histoire des populations d'Europe, Fayard, Paris, 1999 Chesnais J-Cl., La population du monde. Enjeux et problèmes, PUF, Paris, 1997 Wood B., Companion Encyclopedia of Geography, Routledge, Londra, 1994 Sylvie Brunel, 2004, Le développement durable, Paris, PUF Lester Brown, State of the World, Worldwatch Institute, annual 1984-2001 ***Population Bulletin, Population Reference Bureau, ONU, New York ***Population et Sociétés, INED, Paris ***Human Development Report, UNEP, ONU, New York

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**RURAL SPACE PLANNING**	CODE: JTD2411

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Gaining information on the planning of rural space worldwide, regionally, nationally and internationally; understanding the global view on rural space planning, with all the interdependencies generated by it, so that the students should be capable, at the end of this course, to understand how to contribute to the decisions rural space planning.
COURSE CONTENTS	General aspects of rural space planning. European Charta of the Rural Space. Administrative-territorial organization. Infrastructures. Policies of rural space development and planning. Laws. Local development policies. Means for space management. Inhabitation. Soil occupation plan. Elements and factors indicating the dynamics of the rural space. Agrarian structures in Romania. Spatial conflicts in the rural environment.
PRACTICAL	Projects on: Strategy of the actors; logics and consequences of the planning works; natural, patrimonial and socio-political constraints – Case studies
TEACHING METHODS	Interactive lecture; presentations using the video-projector

RECOMMENDED READING	Freeman T. W. (1967) - Geography and planning, Hutchinson University Library, London. Benedek József, (2004) – *Amenajarea teritorului şi dezvoltarea regională*, Presa Universitară Clujeană, Cluj-Napoca. Cornel Mitoiu , Mihai Stan, Ioan Gheorghe Lupan, (2003) - *Amenajarea teritorului*, Ed. Bren, Bucureşti. Ionaşcu Gheorghe S., (2003) – *Amenajarea teritoriului*, Editura Fundatiei "Romania de Maine", Bucureşti. Minea Elena Maria, (2003) - *Amenajarea teritoriului*, Accent, Cluj-Napoca. ***, (1997) - *Arhitectură şi construcții în spațiul românesc 1862-1997*, ALL Educational, Bucureşti. Filip Sorin (2003) - *Indrumator practic pentru planning urban si planning rural*, Cluj-Napoca. Benedek Jozsef, (2001) - *Introducere in planning territorial*, Risoprint, Cluj-Napoca. Spanu Radu Calin, (2004) - *Proiectare teritoriala*, Cluj-Napoca. Chira Sonia Maria, (1998) - *Urbanism şi amenajarea teritorului*, Fundația Universitară Română de Ştiințe şi Arte "Gheorghe Cristea", Bucureşti. Aydalot Philippe (1985) – *Economie régionale et urbaine*, Economica, Paris. Lacour Claude (1983) – *Aménagement du territoire et développement régional*, Dalloz, Paris. Lajugie Joseph, Delfaud Pierre, Lacour Claude (1985) – *Espace régional et aménagement du territoire*, Dalloz, Paris

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

THE FIELD OF GEOGRAPHY

Master: *NATURAL RISKS AND LAND PLANNING*

COURSE TITLE	**EVALUATION OF CLIMATE RISKS**	CODE: JRA1101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	ROMANIAN

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor LIVIU APOSTOL, PhD	Geography

PREREQUISITES	Meteorology and climatology, Topoclimatology and microclimatology

OBJECTIVES	Knowing the notions related to natural risks and climate risks, respectively. The importance of climate risks as a determinant factor and their role in the triggering of the other categories of natural risks. The specificity of climate factors, variability, cyclicity, change, hazard. The anthropic changes of the active surface and the changes in the physical and chemical composition of the atmosphere as factors in the amplification of climate risk phenomena. Global and regional characteristics of climate risks. Climate risks in Romania.
COURSE CONTENTS	**I:** Introduction. Terminology. Climate risk and hazard. Problems of the climate risk in the world and in Romania/**II:** Importance of climate risks and their role in triggering the other categories of natural and anthropic risks/**III:** Importance of knowing the climate and topoclimate within the study of climate risks/**IV:** Genetic factors of the climate: solar radiation, characteristics of the active underlying surface and general circulation of the atmosphere; their global and local changes/**V**: Analysis of anthropic changes caused to aerial environment and changes in the solar radiation intensity as in the caloric radiation balance of the atmosphere/**VI:** Changes of the active underlying surface and of the atmospheric and oceanic circulation. Climate risks, as the result of some unusual synoptic situations and of the accentuation caused in some cases by the active surface characteristics/**VII:** Variability, cyclicity, changes in the climatic elements and phenomena regime and their impact on the climate/**VIII:** Increase of the frequency and intensity of climate risks under conditions of demographic increase and of the settlements built by human society/**IX:** Knowing the specificity of the climate factors, variability, cyclicity and hazard in climate risks production/**X:** Global climate risks and their effects: amplification of the green house effect and global warming, destruction of the ozone layer, aridization, increase of climate excessivity, decrease of the areas occupied by ice and snow, increase of the planetary ocean level etc/**XI:** Climate risks specific to the warm area. Rainfall excesses. Dry areas and deserts. Tropical cyclones. Tornados/**XII:** Climate risks in cold and temperate areas. Mobile cyclones. Oragious cells. Thermal and pluviometric excessivities/**XIII:** Climate risks in Romania. History of special events of the 20th century. Climate risk factors in the warm season. Climate risk factors in the cold season. Climate risks that can occur throughout the year/**XIV:** Material damages and human victims caused by climate risk phenomena in Romania. Prognosis of risk phenomena, insurance, prevention and control degree, legislative and organizational measures.
PRACTICAL	General organization: **Week I** Presentation of basic bibliography on climatology regarding the climate risk phenomena/**Week II** The meteorological network, layout, representativeness/**Week III** Ways of measuring the parameters of climate risk phenomena/**Week IV** Terminology used in meteorological practice/**Week V** Climate elements and phenomena in Romania with climate risk potential/**Week VI** Use of climate data/**Week VII** Analysis of topoclimate conditions that can amplify the effects of climate risks/**Week VIII** Elements of synopsis that apply to climate risk phenomena/**Week IX** Prognosis of climate risk phenomena/**Week X** Calculation of the intensity, frequency and insurance degree/**Week XI** Climate risk syntheses, graphs and maps/**Week XII** Alerting system/**Week XIII** International and European legislation/**Week XIV** Prevention and control strategies, national legislation.
TEACHING METHODS	Lecture, debate, modelling – problematisation.

RECOMMENDED READING	BĂLTEANU, D. (1992), *Natural hazards in Romania,* R.R. Géogr., t. 36, Edit. Academiei, Bucureşti. BĂLTEANU, D., ŞERBAN, MIHAELA (2005), *Modificările globale ale mediului. O evaluare interdiscipliară a incertitudinlor*, Edit. C.N.I. Coresi, Bucureşti. BARBU, I., POPA, I. (2003), *Monitoringul secetei în pădurile din România,* Edit. Tehnică-Silvic, Stațiunea Experimentală de Cultura Molidului din România, Câmpulung-Moldovenesc. BOGDAN, OCTAVIA (1992), *Asupra noțiunilor de ,,hazarde", ,,riscuri" şi ,,catastrofe" meteorologice,* S.C.G., t. XXXIX, Bucureşti. BOGDAN, OCTAVIA, NICULESCU, ELENA (1999), *Riscurile climatice din România,* Inst. de Geogr., Bucureşti.

ASSESSMENT METHODS	Conditions	Attendance of lectures and practical works
	Criteria	Learning the fundamental knowledge
	Way of evaluation	Test and project for practical works; partial and final written exam for the course.
	Formula of the final mark	Partial exam 50% (of which 1/3 for the project); final exam 50% (of which 2/3 for the concepts taught during the lectures and 1/3 for the practical works)

COURSE TITLE	**EVALUATION OF HYDROLOGICAL RISKS**	CODE: JRA1102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	6	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor GHEORGHE ROMANESCU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Capacity of locating places and facts on the map and in the environment. Understanding the spatial dimensions of hydrological risks problems. Understanding and explaining the functioning of the mechanisms specific to the areas affected by hydrological risks. Understanding and explaining the dynamics of the implications caused by hydrological risks in the areas of watercourses or lacustrine cuvettes.
COURSE CONTENTS	S.1. Risk concept components. S.2. Functional complexity of risks and catastrophes. S.3. Risk classification. S.4. Duality of risks and catastrophes. S.5. Risk estimation and perception. S.6. Actions taken after catastrophes. S.7-11. Hydrological risk classification. S.12. Forecast, prevention and diminution of hydrological risks. S.13. Measures for preventing and fighting against floods. S.14. Hydrological risk maps and their importance in the territorial management of the risk.
PRACTICAL	S.1-10. Elaboration and presentation of student projects on problems referring to the evaluation of hydrological risks in Romania and in other states of the world. S.11-14. Field work in the river basins which are representative from this point of view, in order to understand the advantages and disadvantages of the hydro-technical works and to evaluate of the hydrological risk by using specific maps.
TEACHING METHODS	Lecture, conversation, problematisation, heuristic conversation and description.

RECOMMENDED READING	Diaconu S. (1999), *Cursuri de apă. Amenajare, impact, reabilitare,* Editura H.G.A., Bucureşti. Grecu Florina. (2004), *Hazarde şi riscuri naturale,* Editura Universitară, Bucureşti. Haidu I. (2002), *Analiza de frecvență şi evaluarea cantitativă a riscurilor*, Riscuri şi catastrofe, Editor Victor Sorocovschi, Casa Cărții de Ştiință, Cluj-Napoca. Minea I., Romanescu Gh. (2007), *Hidrologia mediilor continentale. Aplicații practice,* Casa Editorială DEMIURG, Iaşi. Newson M. (1994), *Hydrology and the river environment*, Clarendon Press, Oxford. Pandi G. (2002), *Riscul în activitatea de apărare împotriva inundațiilor,* Riscuri şi catastrofe, Editor Victor Sorocovschi, Casa Cărții de Ştiință, Cluj-Napoca. Reteşan-Floca Diana (2002), *Metode multicriteriale de analiză a riscului environmental,* Riscuri şi catastrofe, Editor Victor Sorocovschi, Casa Cărții de Ştiință, Cluj-Napoca. Romanescu Gh. (2006), *Inundațiile ca factor de risc. Studiu de caz pentru viiturile Siretului din iulie 2005,* Editura Terra Nostra, Iaşi. Romanescu Gh., Romanescu Gabriela, Minea I., Ursu A., Mărgărint M.C., Stoleriu C. (2005), *Inventarierea şi tipologia zonelor umede din Podişul Moldovei,* Editura Didactică şi Pedagogică, Bucureşti.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**EVALUATION AND PROGNOSIS OF PEDOLOGIC RISKS**	CODE: JRA1103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	6	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CONSTANTIN RUSU, PhD	Geography

PREREQUISITES	Soil geography with elements of Pedology

OBJECTIVES	Thoroughly acquiring knowledge from the first cycle of study, completed with the problematic of the evaluation of the pedogenetic risk factors and that of evaluating the intrinsic risk.
COURSE CONTENTS	Problems regarding the diagnosis and taxonomic classification of soils. Fertility – fundamental feature of soils Functional restrictions and pedologic risk factors Evaluation and prognosis of pedologic risks linked to physico-mechanical, physical and hydrophysical properties Pedologic risks induced by texture Specific indicators linked to texture Density, bulk density and total porosity. Associated risk factors Hydrophysical coefficients – risk factors. Correlations to climatic and hydrologic drought Evaluation and prognosis of pedologic risks conditioned by water excess. Soil gleying and stagnogleying. Terrain susceptibility to humidity excess Evaluation and prognosis of pedologic risks conditioned by chemical properties Soil reaction. Soil acidity and alkalinity Cationic exchange measures. Oligobazic and eubazic soils Pedologic risks induced by deficiencies of nutritive elements Evaluation and prognosis of pedologic risks induced by soil salinization and alkalinization Geomorphologic processes and pedologic risks Evaluation of risks to soil surface erosion Evaluation of risks to soil gully erosion Evaluation of landslide risk
PRACTICAL	The themes of the practical applications are in agreement with the general themes and the research methodology, regarding the acquiring of knowledge that cannot be sufficiently detailed during the course. Statistical applications, field studies and project based on a soil profile analysis.
TEACHING METHODS	Lectures, questioning

RECOMMENDED READING	Florea N., Munteanu I. (2003) – *Sistemul Român de Taxonomie a Solurilor*, Ed. Estfalia Bucureşti Florea N. (2009) – *Pedodiversitate şi pedociclicitate*, Bucureşti Ianoş Gh. (2006) – *Riscuri naturale şi tehnogene pe terenurile agricole ale Banatului*, Ed. Universităţii de Vest Timişoara Rusu C. (1998) – *Fizica, chimia şi biologia solului,* Ed. Universităţii „Al. I. Cuza" Iaşi Secu C., Rusu C. (2007) - *Geografia solurilor cu elemente de pedologie*, Ed. Universităţii „Al. I. Cuza" Iaşi *** (2003) – Ghidul excursiilor celei de-a XXVII-a Conferinţă Naţională pentru Ştiinţa Solului, Timişoara, 25-30 august 2003 *** (2006) – Ghidul excursiilor celei de-a XXVIII-a Conferinţă Naţională pentru Ştiinţa Solului, Cluj Napoca, 25-30 august 2006 *** (2009) – Ghidul excursiilor celei de-a XXIX-a Conferinţă Naţională pentru Ştiinţa Solului, Iasi, 23-29 august 2009

ASSESSMENT METHODS	Conditions	Attending the practical classes, performing the specific activities
	Criteria	Acquiring fundamental knowledge corresponding to the course themes and objectives
	Way of evaluation	Semester evaluation (written) + final exam (written)
	Formula of the final mark	50% semester evaluation (practical activities, field and written evaluation) + 50% final exam.

COURSE TITLE	**ASSESSMENT AND PREDICTION OF GEOMORPHIC RISKS**	CODE: JRA1104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	102	5	P + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor ION IONIȚĂ, PhD	Geography

PREREQUISITES	Geomorphology, Soil Science, Hydrology

OBJECTIVES	- deepening the study of present-day geomorphological processes; - appropriate evaluation of both the relief dynamics and the main geomorphologic risks.
COURSE CONTENTS	- Soil erosion risk (inter-rill erosion and rill erosion); - Gully erosion risk (development of the discontinuous and continuous gullies); - Risk associated to landslides; - Sedimentation risk (aggradation of the floodplains and reservoir siltation). - Methods used for the assessment and prediction of the main geomorphic risks.
PRACTICAL	- Procedures for estimating surface erosion; - Models of predicting erosion by water; - Methods to estimate and predict gullying; - Mapping of slopes affected by landslides; - Methods for estimating the rate of sedimentation.
TEACHING METHODS	- lectures supported by both projector and overhead projector; - problems of interest and heuristic conversation.

RECOMMENDED READING	BALLY R. J., STĂNESCU P. (1977) – ALUNECĂRILE ŞI STABILITATEA VERSANȚILOR AGRICOLI, EDIT. CERES, BUC. BĂLTEANU D. (1983) – EXPERIMENTUL DE TEREN ÎN GEOMORFOLOGIE. APLICAȚII LA SUBCARPAȚII BUZĂULUI, EDITURA ACADEMIEI R.S.ROMÂNIA, BUCUREŞTI. ICHIM I., RĂDOANE MARIA (1986) – EFECTELE BARAJELOR ÎN DINAMICA RELIEFULUI. ABORDARE GEOMORFOLOGICĂ, EDITURA ACADEMIEI R.S.ROMANIA, BUCUREŞTI. IONIȚĂ I. (2000) – *GEOMORFOLOGIE APLICATĂ - PROCESE DE DEGRADARE A REGIUNILOR DELUROASE,* EDIT."UAIC" IAŞI. IONIȚĂ I. (2000) – *FORMAREA ŞI EVOLUȚIA RAVENELOR DIN PODIŞUL BÂRLADULUI*. EDITURA CORSON, IAŞI. LAFLEN .J., MOLDENHAUER W. C. (2003) – *PIONEERING SOIL EROSION PREDICTION. THE USLE STORY*. WORLD ASSOCIATION OF SOIL AND WATER CONSERVATION. WWW.SWCC.CN/WASWC/,WASWC@ICRTS.ORG MOȚOC M., (1983) –*RITMUL MEDIU DE DEGRADARE EROZIONALĂ A SOLULUI ÎN R. S. ROMÂNIA,* BUL. INF. A. S. A. S. NR. 12, BUCURESTI. MOTOC M., MUNTEANU S., BĂLOIU V., STANESCU P., MIHAI GH. (1975) – *EROZIUNEA SOLULUI SI METODELE DE COMBATERE*. EDITURA CERES, BUC. RADOANE MARIA ET AL. (1999) – *RAVENELE. FORME, PROCESE ŞI EVOLUTIE.* E. P. U. CLUJEANĂ, CLUJ. SURDEANU V. (1998) – *GEOGRAFIA TERENURILOR DEGRADATE. ALUNECĂRI DE TEREN*. E. P. U. CLUJEANĂ, CLUJ. USDA-ARS (2003) – *WEPP (WATER EROSION PREDICTION PROJECT) MODEL*. WISCHMEIER W. H., SMITH D. D. (1965) – *PREDICTING RAIFALL- EROSION LOSSES. A GUIDE TO CONSERVATION PLANNING.*

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical works (out of a maximum of 3 points) Compulsory attendance to both the course and the practical works
	Criteria	Thorough assimilation of key field concepts; The capacity of synthesising the acquired knowledge in a wider geographical context; Ability to apply the acquired knowledge to specific situations.
	Way of evaluation	Continuous evaluation during practical works and two evaluations in the form of written tests.
	Formula of the final mark	10% for course attendance; 30% for attendance and activity during the practical works; 30% first assessment and 30% second assessment.

COURSE TITLE	**ASSESSMENT AND MANAGEMENT OF ANTHROPIC RISKS**	CODE: JRA1104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M	SEMESTER		STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor EUGEN RUSU, PhD	Geography

PREREQUISITES	Human Geography

OBJECTIVES	1. Knowing the concepts of threat, risk, hazard and their implications for individuals, groups and society as a whole. 2. Acquiring the methodology for the investigation of human risks and their consequences 3. Deepening the methodology of prevention and warning the public about human risk
COURSE CONTENTS	Development of human society and the emergence of human risk. Definition and classification of human risk. Perception of human risk. Chronology of legislative developments. Technological risks. Industrial activities and risks induced. Agricultural activities and risks induced. The risks of transmission. The risks induced by service activities. Military actions, economic migration, terrorism, political decisions. The risks induced by scientific activities. Risk assessment and prevention of human risk. Policy makers in the monitoring and management of anthropogenic risks. Plans of action to remove their consequences. Future risks
PRACTICAL	Disasters that changed the perception of risk. Analysis of industrial risk: mining, steel and petroleum. The chemical industry, building materials and wood. The risks induced by agriculture: case study The risks of transportation. Comparative analysis by type of transportation. Nuclear power. The risk of radioactive contamination. The terrorist threat, security and independence of the individual. GMO's, E's and other slow poisons. Risk communications. Radiation. The risks of economic and financial crisis. Science, technology and risk. Microbiology. Domestic risks. Anthropogenic Risk Reduction in Romania Prospects for the prevention and control of human risk.
TEACHING METHODS	Lectures, application and data interpretation

RECOMMENDED READING	Bălteanu, D., Rădița, A., 2001, Hazarde naturale şi antropogene, Ed.Corint, Bucureşti. Kletz, T., 1999, Hazop and Hazan. Identifying and assessing process industry hazards, Publicată de Institution of Chemical Engineers, Ediția a IV-a. pg. 95. Ozunu, A., 2000, Elemente de hazard si risc in industrii poluante, Ed. Accent, Cluj-Napoca. Danu M.C, Riscul în afaceri, Editura Plumb, Bacău, 2001, pag.79-114 Colson G., Gestion du Risque, E.A.A., Paris, 1995, pag.21-62, 202 Roselius T, Consumer Rankings of Risks Reduction Methods, Journal of marketing, nr.35/1971 ZaiŃ A., Marketingul serviciilor, Editura Sedcom Libris, Iasi, 2002, pag.105-109 Legea nr. 575/2001 privind aprobarea planului de amenajare a teritoriului național – Secțiunea a V-a – Zone de risc natural)

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**NATURAL RISKS RESEARCH METHODOLOGY**	CODE: JRA1207

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DAN LESENCIUC, PhD	Geography

PREREQUISITES	

OBJECTIVES	The acquirement of practical and theoretical knowledge used in natural risk research at the geographic system level. Understanding the importance of research on natural risks. Organization of principles, methods and means of natural risk research. Acquiring scientific methodology of scientific interpretation. Knowledge of elaboration methods of the results of natural risk research.
COURSE CONTENTS	Week I: Natural risks research in the context of current geographical research Week II: Particular and general methods used in risk research Week III: Particular and general methods used in risk research Week IV: Research stages necessary in natural risk approach Week V: Means of risk research Week VI: Inventory of reference and bibliographical sources Week VII: Methods of field research Week VIII: Quantitative methods of risk evaluation Week IX: Modern means and methods in risk evaluation Week X: The usage of GIS in natural risk research Week XI: Elaboration of some integrated indicators in natural risk analysis Week XII: The usage of indicators in natural risk forecast Week XIII: The elaboration of maps of natural risk Week XIV: Ways of scientifically writing risk studies
PRACTICAL	THE AIMS OF THE PRACTICAL WORKS THEMES ARE TO EMPHASIZE THE APPLICATIVE SIDE OF THE COURSE BY PRACTISING SOME ELEMENTS RELATED TO RESEARCH MEANT TO HELP THE STUDENTS TO WRITE THEIR OWN DISSERTATION PAPERS: THE APPLICABILITY OF THE NATURAL RISK RESEARCH METHODS; THE USAGE OF QUANTITATIVE METHODS IN GEOMORPHOLOGICAL RISK STUDIES;THE USAGE OF QUANTITATIVE METHODS IN GEOLOGICAL RISK STUDIES;THE USAGE OF QUANTITATIVE METHODS IN HYDROLOGICAL RISK STUDIES;THE USAGE OF QUANTITATIVE METHODS IN CLIMATOLOGICAL RISK STUDIES;THE USAGE OF QUANTITATIVE METHODS IN BIOGEOGRAPHICAL RISK STUDIES; THE ELABORATION STAGES OF GEOMORPHOLOGICAL RISK STUDIES; THE ELABORATION STAGES OF GEOMORPHOLOGICAL RISK STUDIES; THE ELABORATION STAGES OF CLIMATOLOGICAL RISK STUDIES; THE ELABORATION STAGES OF CLIMATOLOGICAL RISK STUDIES; THE ELABORATION STAGES OF HYDROLOGICAL RISK STUDIES; THE ELABORATION STAGES OF HYDROLOGICAL RISK STUDIES; THE ELABORATION STAGES OF BIOGEOGRAPHICAL RISK STUDIES; THE ELABORATION OF MAPS OF NATURAL RISKS
TEACHING METHODS	Lecture, discussion, modelling – problematisation

RECOMMENDED READING	Abrassart, Elisabeth (1996) – *Les risques liés au climat: point de vue d'un réassureur,* vol. "Les risques liés au climat", Université de Dijon. Bălteanu, D., Alexe, Rădița (2000) – *Hazarde naturale şi antropogene*, Curriculum opțional pentru învățământul preuniversitar, Edit. Corint, Bucureşti. Bethemont, J. (1991) – *Sur la nature des événements extrémes: catastrophe et cataclysme,* Rev. Géogr., Lyon. Bogdan, Octavia, Niculescu, Elena (1999) – *Riscurile climatice din România*, Academia Română, Institutul de Geografie, Bucureşti. Bourdier, J. L. şi colab. (1994) – *Le volcanisme,* Editions BRGM, Orléans.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**QUANTITATIVE METHODS OF EVALUATING PEDOLOGIC RISKS**	CODE: JRA1208

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	6	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CONSTANTIN RUSU, PhD	Geography

PREREQUISITES	Soil Geography with elements of Pedology, Geomorphology, Applied Informatics

OBJECTIVES	The course aims at the acquiring of quantitative methods for evaluating pedologic risks by applying models based on numeric and alphanumeric databases.
COURSE CONTENTS	1. Quantitative analysis in geography. Research principles and methods 2. Quantitative analysis of pedologic risks. Principles and data colection methods 3. Creating databases 3.1. Field data 3.2. Laboratory analytic data 3.3. Representativeness and validity of data. Verification methods 4. Sampling 5. Quantitative methods for determining the potential for erosion of soil 6. Soil erosion quantitative methods and estimation models 7. Quantitative methods for evaluating gully erosion 8. Quantitative methods for determining landslide erosion 9. Quantitative methods of evaluating soil degradation processes (gleying, stagnogleying, acidification, salinization, alkalization, compaction etc.) 10. Spatialization of quantitative data 11. Elaborating prognosis models. Statistical inference
PRACTICAL	The themes of the practical activities are over-imposed on the themes of the courses, by effectively applying methods presented at the courses on real databases, for an effective acquiring of the quantitative methods of pedologic risks evaluation. Elaborating a study and research project.
TEACHING METHODS	Lectures, questioning, problem solving

RECOMMENDED READING	**Apetrei M., Groza O., Grasland C. (1996)** – *Elemente de statistică cu aplicații în geografie*, Ed. Universității „Al.I.Cuza" Iaşi Ianoş Gh. (2006) – *Riscuri naturale şi tehnogene pe terenurile agricole ale Banatului*, Ed. Universității de Vest Timişoara Radoane Maria ş.a. (1996) – *Analiza cantitativă în geografia fizică*, Ed. Universității „Al. I. Cuza" Iaşi Rădoane Maria ş.a. (1999) – *Ravenele. Forme, procese, evoluție*, Ed. Presa Universitară Clujeană Rusu C. (1998) – *Fizica, chimia şi biologia solului,* Ed. Universității „Al. I. Cuza" Iaşi Surdeanu V. (1998) – *Geografia terenurilor degradate. Alunecările de teren*, Presa Universitară Clujeană, Cluj-Napoca **Wischmeier W**., H., Smith D.D. (1978) - *Predicting rainfall erosion losses. A guide to conservation planning*, Agricultural Handbook nr. 537, Departement of Agriculture, USDA Washington

ASSESSMENT METHODS	Conditions	Attending the practical classes, performing the specific activities
	Criteria	Acquiring fundamental knowledge corresponding to the course themes and objectives
	Way of evaluation	Written exam
	Formula of the final mark	50% semester evaluation (practical activities, field and written evaluation) + 50% final exam.

COURSE TITLE	**STATISTICAL AND SPATIAL METHODS OF ANALYSIS IN THE ORGANIZATION OF SPACE AND SPATIAL PLANNING**	CODE: JRA1210

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1	1			56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	Spatial organization; Theory of spatial planning

OBJECTIVES	Assimilation of the concepts, notions and basic terms of statistic and spatial analysis, of the analysis methods of statistic data, of the analysis methods for spatial structures; creating abilities of spatial expertise
COURSE CONTENTS	Statistical distribution and spatial distribution; Statistical concentration and spatial concentration; Spatial heterogeneity and statistical dispersion; General principles for the analysis of the relation between two quality characters; Analysis of a spatial contingency table; The relationship between two quantitative characters: correlation, regression. Application of regression in geography; Time series analysis: descriptive approach. Analysis of variance. General principle. Applications in geography. Inductive approach: optimal regionalization. Deductive approach: measuring the effect of a territorial organization.
PRACTICAL	Presentation of spatial and statistic analysis software; Practical applications of the central values; of the concentration values, of the contingency tables, of the spatial contingency tables, of correlation, of regressions, of the chronological series, of the variance analysis I; Spatial analysis, communication and cartography.
TEACHING METHODS	Interactive course based on the use of media

RECOMMENDED READING	Apetrei, M. ; Grasland, Cl. ; Groza, O., 2005 – Elemente de Statistică cu aplicații în Geografie(Elements of Statistics with Applications in Geography), UAIC, Iaşi; Charre, J., 1995 – Statistiques et territoire, GIP-RECLUS, Montpellier; Chemla, G., 1995 - Statistique appliquée à la géographie, Nathan, Paris; Chorley, R.; Haggett, P., 1970 - Socio-economic models in Geography, Methuen &Co Ltd, London; Cicéri, M.F. ; Marchand, B. ; Rimbert, S., 1977 - Introduction a l'analyse de l'espace, Masson, Paris; Dauphiné, A., 1987 – Les modèles de simulation en géographie, Economica, Paris; Haggett, P, 1965 – Location Analysis in Human Geography, Arnold, London; Jayet, H., 1993 - Analyse spatiale quantitative. Une introduction, Economica, Paris; Pumain, D.; Saint Julien, Th., 1997 – L'Analyse spatiale. Localisations dans l'espace, A. Colin, Paris; Pumain, D.; Saint Julien, Th., 2001 – Les interactions spatiales, A. Colin, Paris Sanders, L., 1989 – L'Analyse des données statistiques en géographie, Alidade-RECLUS, Montpellier

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**MODERN TECHNIQUES AND METHODS OF ENVIRONMENTAL REMEDIATION**	CODE: JRA2303

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor RADU LACATUSU, PhD	Geography

PREREQUISITES	Environmental pollution; Environmental chemistry; Environmental geography

OBJECTIVES	1. General notions concerning environmental pollution (causes, forms, effects). 2. Assessment of the type and intensity of pollution. 3. Criteria for the selection of remediation technology. 4. Presentation of methods of remediation for environmental components.
COURSE CONTENTS	a. Environmental pollution components (definition, causes, types, migration of pollutants, effects). b. Quality Standards of environmental components c. Phases before the implementation of remediation technologies to environmental components. d. Methods of soil and groundwater remediation. d.1. Physical methods for immobilization of pollutants (sealing. Hydraulic lock, stabilization inertation). d.2. Physical methods used in the extraction of pollutants (excavation, pumping, washing, flotation). d.3. Thermal methods (incineration, thermal desorbtion, vitrification). d.4. Chemical methods (chemical extraction, oxidation, reduction, dechlorination, precipitation) d.5. Biological methods (biodegradation, bioaccumulation, biolixivation, bioremediation) e. Ecological restoration of polluted soil f. Methods for the remediation of surface water g. Methods for the remediation of indoor air h. Methods of purification of industrial gases
PRACTICAL	a. Determination of total and soluble heavy metals (Fe, Mn, Cu, Zn, Cd, Co, Ni, Pb) in soil, water and plants b. Determination of the nitrate content in soil. c. Determination of petroleum hydrocarbons residues in contaminated soils. d. Interpretation of analytical data on the content in inorganic and organic pollutants e. Elaboration of a project regarding the decontamination of polluted soil (the chosen topics will be differentiated according to the nature of the pollutant, the intensity of the pollution, the natural conditions) f. Elaboration of a project concerning the remediation of environmental components.
TEACHING METHODS	Lecture, discussion, modelling

RECOMMENDED READING	
	Alexander M., 1994, *Biodegradation and Bioremediation*, Academic Press, San Diego, New York, Boston, London, Tokyo, Toronto Blume H.P. (Ed.), 1990, *Handbuch des Bodenschutzes,* Ecomed, Landsberg/Lech Ciplea L.I., Ciplea Al., 1978, *Poluarea mediului ambiant,* Ed. Tehnică, Bucuresti Fergusson J.E., 1990, *The Heavy Elements,* Pergamon Press, Oxford, New York Ionescu Al., 1982, *Fenomenul de poluare si măsuri de antipoluare în agricultură,* Ed.Ceres, Bucureşti Gamenț Eugenia, Dumitru M., Motelică M., Vrînceanu Nicoleta, Enache Roxana, Dumitru Elisabeta, 1999, *Poluarea solurilor cu fluor*, Ed. Risoprint, Cluj-Napoca Hutzinger O.(Ed.), 1982, *The Handbook of Environmental Chemistry*, Springer Verlag, Berlin, Heidelberg, New Yorki

ASSESSMENT METHODS		
	Conditions	Attendance of the practical work activities
	Criteria	Active participation in laboratory activities
	Way of evaluation	Oral and written evaluation
	Formula of the final mark	Assessment of participation in the laboratory activities 40% Answers at the final examination 60%

COURSE TITLE	**URBAN RISKS AND THEIR MANAGEMENT**	CODE: JRA 2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Adrian GROZAVU, PhD	Geography

PREREQUISITES	Cartography; Natural and anthropic hazards and risks

OBJECTIVES	Analysing the risk phenomena threatening the urban settlements in the present, their causes, forms of manifestation and effects and also their possible ways of management. Forming the ability to research and utilize the information and statistical data for the analysis and interpretation of the concrete situations linked to the occurrence of these phenomena. Practical materialization of theoretical knowledge concerning the possibilities of management, elaboration of support-materials for the activity of prevention and dismissing of the effects of risk phenomena.
COURSE CONTENTS	I. Urban risks - types, causes, effects, management: Natural risks; Industrial risks; Mining risks; Large scale structure risks; Transportation risks; Derelict industrial zone risks; Nuclear risks; Fires; Pollution; Health risks; Answers to technological risks. II. Social risks: Urban violence and unsafety; Poverty, unemployment; Urban unsafe territories; Terrorism; Answers to social risks. III. Estate diagnosis and risk prognosis.
PRACTICAL	1. Analysis and interpretation of urban risk situations. 2. Perception, representation and modelling of urban risks. 3. Drawing up graphical and cartographical material regarding the spatial distribution of risks (vulnerability maps, risk maps). 3. Elaboration and presentation of estate diagnosis and risk prognosis, with optional subjects.
TEACHING METHODS	Lecture, debate, modelling – problematisation

RECOMMENDED READING	1. Bennett, B., 2007, *Understanding, assessing, and responding to terrorism: protecting critical infrastructure and Personnel*, John Wiley & Sons, New Jersey 2. Beck, U., 2001, *La société du risque sur la voie d'une autre modernité*, Edit. Aubier, Paris. 3. Chiles, J. R., 2001, *Inviting disasters, lesson from the edge of technology. An inside look at catastrophe and why they happen*, Harper Business, London. 4. Dubois-Maury, Joceline, Chaline, Claude, 2002, *Les risques urbains,* 2e édition, Armand Colin, Paris. 5. Soullez, C., 1999, *Les violences urbaines*, Ed. Milan, Paris. 6. Walter, J., 2002, *World disasters report 2002, focus on reducing risk*, Kumarian Press, London

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**GEOMORPHOLOGICAL RISKS INCURRED BY HUMAN ACTIVITIES**	CODE: **JRA2304**

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DAN DUMITRIU**,** PhD	Geography

PREREQUISITES	Geomorphology, Geology, Climatology, Hydrology, Pedology, Cartography

OBJECTIVES	The course has the following objectives: man as a geomorphological agent; *geomorphological risks* linked to the use of land; *Geomorphological risks* in connection with activities related to exploitation; *Geomorphological risks* induced by activities of environmental planning.
COURSE CONTENTS	• *Geomorphological risks linked to* industrial forestry activities • Geomorphological risks related to mining • Geomorphological risks in relation to hydropower • Geomorphological risks in relation to planning coastline and port construction • Geomorphological risks induced by spatial means of communication
PRACTICAL	• Methods of calculating the geomorphological risk induced by human activities • Determining the sediment budget in arranged river basins • Methods for determining the dynamics of river channels
TEACHING METHODS	Lecture (speech, PowerPoint presentation), explaining, questioning, collaboration, demonstratation

RECOMMENDED READING	**Băcăuanu, V.** (1988) – *Geomorfologie*. Ed. Univ."Al.I.Cuza", Iaşi. **Bălteanu D., Alexe R**. (2000) – *Hazarde naturale şi antropice*. Ed. Corint, Bucureşti. **Chorley R.J., Schumm S.A., Sugden D.E.** (1985) - *Geomorphology*. Methuen, London. **Ichim, I., Maria Rădoane** (1986), *Efectele barajelor în dinamica reliefului*, Editura Academiei. **Ioniță, I**. (2000b), *Geomorfologie aplicată. Procese de degradare a regiunilor deluroase*, Editura Universității "Al. I. Cuza" Iaşi, 250 p. **Rădoane Maria, Dumitriu D., Ichim I.** (2006) – *Geomorfologie (I)*. Ed. Univ. Suceava **Rădoane Maria, Dumitriu D. Ichim I.,** (2006) – *Geomorfologie (II)*. Ed. Univ. Suceava **Posea, Gr., M. Grigore, N. Popescu, M. Ielenicz** (1976) – *Geomorfologie*. Ed. Did. şi Ped. **Ritter D.F., Kochel RC., Miller J.R.** (2006) – *Process geomorphology*. Waveland Press, L. Grove, **Selby M.J.** (1985) – *Earth's Changing Surface. A introduction to Geomorphology*, Clar Press, **Selby M.J.** (1993) – *Hillslope materials and processes*. Oxford Univ. Press, Oxford. **Summerfield M.** (1992) – *Global geomorphology*. Longman **Surdeanu V.** (1999) – *Geografia terenurilor degradate* . Ed. Presa Universitară, Cluj Napoca. **Victor Sorocovschi** (editor) (2003, 2006) – *Riscuri şi catastrofe*. Ed. Casa Cărții de Ştiință, Cluj Napoca.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**APPLIED PEDOLOGY**	CODE: JRA2305

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		54	96	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor CRISTIAN SECU, PhD	Geography

PREREQUISITES	Meteorology and climatology, General geology, Biogeography, Soil geography with elements of Pedology

OBJECTIVES	Knowing the characteristics of the soil cover from the agricultural and urban areas, from the intensely modified areas (dumps, archaeological sites) and problems generated by their management. Acquiring the basic principles of soil quality evaluation and of Geographical Information Systems in soil science. Acquiring the techniques for conducting field and laboratory measurements and interpreting data.
COURSE CONTENTS	Soils of the agricultural areas (characteristics, use, management, degradation and pollution). Soils of the urban areas (characteristics, use, management, degradation and pollution). Soil characteristics associated to the intensely human modified areas (stock piles, dumps, pits, archaeological sites etc.). Applied soil science in the management of natural and anthropic risks. Applied soil science in the evaluation of terrain quality (soil quality, FAO classification and Sanchez, 2003). Applied soil science in Geographical Information Systems.
PRACTICAL	Sample typology, sampling, preparing the samples for analyses, types of soil maps. Data interpretation for the gleysation and stagnogleysation degree. Calculating and interpreting data for alkalization and salinization intensity. Soil texture, analyses methods, data interpretation and the graphical representation of the results. Data interpretation for soil changes through agricultural use, for erosion degrees and soil pollution. Soil humidity and hydrophysical indices (determination, interpretation and graphical representation of the results. Determination of soil permeability, interpretation and graphical representation of the results. Determination of soil suction. Determination of penetration resistance, interpretation and graphical representation of the results. GIS applications in soil science.
TEACHING METHODS	Lecture, discussions, video presentations, field activities, laboratory practical activities

RECOMMENDED READING	
	Adrianom, D. C., 2001. *Trace elements in Terrestrial Environments. Biogeochemisty, Bioavailability and Risk of Metals*, second edition, Springer. Day R. W., 2001, *Soil testing Manual, Procedures, Classification Data and Sampling Practices*, McGraw Hill, Inc. Pierzynski G. M., Sims J. T., Vance G. F., 2005, *Soils and environmental quality*, 3th edition, Tailor and Francis Grop, 569 p. Prasad R., Power J. F., 1997, *Soil fertility management for sustainable agriculture*, Lewis Publishers. Secu C. V., Patriche C. V., 2007, *Solurile lumii. Clasificare, răspândire, caracteristici*, ediția a II-a, Edit. Terra Nostra, Iaşi, 317 p.

ASSESSMENT METHODS		
	Conditions	Conducting practical activities
	Criteria	Passing every evaluation with at least the minimum mark admitted (5)
	Way of evaluation	Continuous and final evaluation
	Formula of the final mark	0,3 x mark of the first project 1 + 0,3 x mark of the second project 2 + 0,3 x final evaluation + 1 granted

COURSE TITLE	**IMPROVEMENT OF THE DEGRADED AGRICULTURAL LAND**	CODE: JRA2407

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	102	5	P + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor ION IONIȚĂ, PhD	Geography

PREREQUISITES	Geomorphology, Soil Science, Hydrology

OBJECTIVES	- acquiring knowledge of proper assessment of the production potential of agricultural land; - assimilation of theoretical knowledge referring to methods of land improvement; - learning the practical experience necessary for the layout of conservation practices on the field.
COURSE CONTENTS	- Land degradation processes in Romania; - Establishing categories in land use; - Land improvement of the degraded cropland; - Land improvement of pastures, vineyards and orchards; - Land reclamation on both the landslides and the wetted areas; - Agricultural road network; - National and global experiences on best management practices. - Strategies to encourage land rehabilitation.
PRACTICAL	- Methods for the improvement of degraded agricultural land (cropland, pastures, vineyards and orchards). - Two field trips in the Moldavian Plateau.
TEACHING METHODS	- lectures supported by both projector and overhead projector; - issues of interest and heuristic conversation.

RECOMMENDED READING	1. Bally, R. J., Stănescu, P. (1977) – Alunecările şi stabilitatea versanților agricoli. Edit. Ceres, Bucureşti. 2. Băloi, V., Ionescu, V. (1986) – Apărarea terenurilor agricole împotriva eroziunii, alunecărilor şi inundațiilor. Edit. Ceres, Buc. 3. Dumitrescu, M. et al. (1999) – Ameliorarea pajiştilor degradate din zona de silvostepă. Edit. „Ion Ionescu de la Brad", Iaşi. 4. Florea, N. (2003) – Degradarea, protecția şi ameliorarea solurilor şi terenurilor. Bucureşti. 5. Moțoc, M., Munteanu, S., Băloiu, V., Stănescu, P., Mihai, Gh. (1975) – Eroziunea solului şi metodele de combatere. Edit. Ceres, Buc. 6. Nițu, I. et al (1985) – Ameliorarea şi valorificarea solurilor sărăturate din România. Edit. Ceres, Buc. 7. Savu, P., Bucur, D. (2002) – Organizarea şi amenajarea teritoriului agricol cu lucrări de îmbunătățiri funciare. Edit. „Ion Ionescu de la Brad", Iaşi. 8. Surd V., Bols I., Zotic V., Chira Carmen (2005) – Amenajarea teritoriului şi infrastructuri tehnice. Edit. Presa Universitară Clujeană. 9. Traci, C. (1985) – Împădurirea terenurilor degradate, Edit. Ceres, Buc.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical works (out of a maximum of 3 points) Compulsory attendance to both the course and the practical works
	Criteria	Thorough assimilation of key field concepts; The capacity of synthesising the acquired knowledge in a wider geographical context; Ability to apply the acquired knowledge to specific situations.
	Way of evaluation	Continuous evaluation during practical works and two evaluations in the form of written tests.
	Formula of the final mark	10% for course attendance; 30% for attendance and activity during the practical works; 30% first assessment and 30% second assessment.

COURSE TITLE	**WATERCOURSE AND WETLAND PLANNING**	CODE: JRA2408

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	6	C	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor GHEORGHE ROMANESCU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Developing the capacity to locate places and facts on the map and in the environment. Understanding the spatial dimensions of the issues related to hydrological risks and watercourse management. Understanding and explaining of the functioning rules for the mechanisms which are specific to watercourse management in the humid areas. Understanding and explaining the dynamics of the consequences of hydrological risks.
COURSE CONTENTS	1. Definition of hydrologic risk. 2. Perturbation – impact – natural recovery in the lotic ecosystems. 3. The effects of watercourse management works on the environment. 4. Evaluation of the state of watercourse ecosystems. 5. Evaluation methods of the impact of the planning works on the environment. 6. Ecosystemic management of watercourses. 7. Ecologic rehabilitation of watercourse ecosystems. 8. Evaluation and rehabilitation of the other areas with hydrological risk, with impact on watercourses. 9. Definition of wetlands. 10. Typology of wetlands. 11. Description of the water environment, with special emphasis on the wetlands. 12. Inventory and typology of wetlands. 13. Spatial distribution of wetlands (in the world and locally). 14. The role of wetlands in the context of the natural and human induced risks. 15. Notions of wetland conservation. 16. Drying up and conservation of wetlands.
PRACTICAL	1. Elaboration and presentation of student projects on the management of watercourses and the preservation of humid zones in Romania and in other states of the world. 2. Field work in the river basins which are representative from this point of view, in order to see the advantages and disadvantages of such works.
TEACHING METHODS	Lecture, conversation, problematisation, heuristic conversation and description.

RECOMMENDED READING	Amoros C. (1993), *Hydrosystèmes fluviaux*, Masson, Paris. Bravard J.P. (2000), *Les cours d'eau. Dynamique du système fluvial, Armand Colin, Paris.* Carter V. (1996), *Technical Aspects of Wetlands. Wetland Hydrology, Water Quality, and Assoiciated Function*, In: National Water Summary on Wetland Resources, United States Geological Survey, Water-Supply Paper 2425, Washington D.C. Coleman R.E., LaRoe E.T., Theriot R.F. (1996), *Wetland Management and Research. Wetland Resources,* United State Geological Survey, Water-Supply Paper 2425, Washington D.C. Diaconu S. (1999), *Cursuri de apă. Amenajare, impact, reabilitare,* Editura H.G.A., Bucureşti. Minea I., Romanescu Gh. (2007), *Hidrologia mediilor continentale. Aplicații practice,* Casa Editorială DEMIURG, Iaşi. Newson M. (1994), *Hydrology and the river environment*, Clarendon Press, Oxford..

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**RURAL SPACE PLANNING**	CODE: JRA2410

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Gaining information on the planning of rural space worldwide, regionally, nationally and internationally; understanding the global view on rural space planning, with all the interdependencies generated by it, so that the students should be capable, at the end of this course, to understand how to contribute to the decisions rural space planning.
COURSE CONTENTS	General aspects of rural space planning. European Charta of the Rural Space. Administrative-territorial organization. Infrastructures. Policies of rural space development and planning. Laws. Local development policies. Means for space management. Inhabitation. Soil occupation plan. Elements and factors indicating the dynamics of the rural space. Agrarian structures in Romania. Spatial conflicts in the rural environment.
PRACTICAL	Projects on: Strategy of the actors; logics and consequences of the planning works; natural, patrimonial and socio-political constraints – Case studies
TEACHING METHODS	Interactive lecture; presentations using the video-projector

RECOMMENDED READING	Freeman T. W. (1967) - Geography and planning, Hutchinson University Library, London. Benedek József, (2004) – *Amenajarea teritorului şi dezvoltarea regională*, Presa Universitară Clujeană, Cluj-Napoca. Cornel Mitoiu , Mihai Stan, Ioan Gheorghe Lupan, (2003) - *Amenajarea teritorului*, Ed. Bren, Bucureşti. Ionaşcu Gheorghe S., (2003) – *Amenajarea teritoriului*, Editura Fundatiei "Romania de Maine", Bucureşti. Minea Elena Maria, (2003) - *Amenajarea teritoriului*, Accent, Cluj-Napoca. ***, (1997) - *Arhitectură şi construcţii în spaţiul românesc 1862-1997*, ALL Educational, Bucureşti. Filip Sorin (2003) - *Indrumator practic pentru planning urban si planning rural*, Cluj-Napoca. Benedek Jozsef, (2001) - *Introducere in planning territorial*, Risoprint, Cluj-Napoca. Spanu Radu Calin, (2004) - *Proiectare teritoriala*, Cluj-Napoca. Chira Sonia Maria, (1998) - *Urbanism şi amenajarea teritorului*, Fundaţia Universitară Română de Ştiinţe şi Arte "Gheorghe Cristea", Bucureşti. Aydalot Philippe (1985) – *Economie régionale et urbaine*, Economica, Paris. Lacour Claude (1983) – *Aménagement du territoire et développement régional*, Dalloz, Paris. Lajugie Joseph, Delfaud Pierre, Lacour Claude (1985) – *Espace régional et aménagement du territoire*, Dalloz, Paris

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**URBAN PLANNING AND POLICIES**	CODE: JM1208

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor CORNELIU IAȚU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Getting familiar with the evaluation of a territory from the point of view of spatial organization and offering solutions meant to eliminate any malfunctioning. Acquiring the capacity to make spatial and temporal correlations at a regional level. Visualization and analysis of the functional and interdisciplinary complex aspects of territorial planning. Emphasizing the factors that ensure the spatial correlation of society and of the territorial planning methods.
COURSE CONTENTS	W1: 1. European Charta of territorial planning. Concepts, object of study. W2-4: 2. Territorial planning policies W5-6: 3. Community space development scheme (SDEC) W7-8: 4. National territory Planning Scheme – settlement section. W9-10: 5. History of urban policies (evolution of the economic, spatial and sociologic objectives, the role of the actors, the means of intervention), new urban policies and planning actors. W11-13: 6. Urban planning and elements of operational urbanism W14: 7. Environment and urban planning (impact studies)
PRACTICAL	Projects on case studies on given themes: - transportation – a case of necessary planning in the X locality (problems; history, participant actors – institutional and daily, spaces dominated by cars; spaces dominated by pedestrians; bus station; railway station; aesthetic impact) - decentralization and its effects on urban territorial planning - town – village report in EU - characteristics of the recently built space. Comparison with the old urban space. Avatars, advantages and structure. - the role of technological parks in territorial planning and development. The students must devise a project on one of the following themes, insisting on a diagnosis of the present state and on the identification of the main problems and proposals of measures in the planning perspective : - development perspectives of a touristic port (on the Black Sea) - balneary architecture in Romania - creation of virtual Romanian communities within the communities of Romanians living abroad (creating a site for the Romanians living abroad) - re-planning of the centre of town X – a possible project of the Palas type. - industry and services. Diffusion and spatial cover. Transformation of the urban functions. - urban restructuration and renovation in localities.
TEACHING METHODS	- lectures with video-projector - problematisation and heuristic conversation.

RECOMMENDED READING	Benedek, J. (2004) – Amenajarea teritoriului si dezvoltarea regională, Presa Universitară Clujeană, Cluj-Napoca. Cornel Mitoiu , Mihai Stan, Ioan Gheorghe Lupan, (2003) – Amenajarea teritoriului, Ed. Bren, Bucureşti. Ionaşcu Gheorghe S., (2003) – Amenajarea teritoriului, Editura Fundatiei "Romania de Maine", Bucureşti. Minea Elena Maria, (2003) - Amenajarea teritoriului, Accent, Cluj-Napoca. Lacour Claude (1983) – Aménagement du territoire et développement régional, Dalloz, Paris. Lajugie, J., Delfaud, P., Lacour, Cl. (1985) – Espace régional et aménagement du territoire, Dalloz, Paris.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**ECOLOGIC RECONSTRUCTION**	CODE:

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor ANGLELA LUPASCU, PhD	Geography

PREREQUISITES	General physical geography

OBJECTIVES	Ecologic reconstruction or the process of intentional modification of an area for the creation of a defined, autochthonous and historic ecosystem that has as purpose recreating the structure, functions, diversity and specific dynamics of the ecosystem. The practices of recreating wetlands for preventing floods, re-emplacing mining areas that needed protection against soil erosion, the management of agricultural areas so as to ensure the production of forage or the management of forested spaces are among the major preoccupations the retrieval of species or biological communities. Ecological reconstruction offers the theory and working techniques for varied types of degraded ecosystems.
COURSE CONTENTS	Ecological reconstruction. Definition. Classification. Ecosphere degradation, causes and ecological consequences (demographic explosion and its ecological consequences; human induced environmental modifications; pollution and its ecological implications) Nature conservation (managing natural resources, conserving genetic resources, conserving nature on the Globe through natural parks and reservations) Ecological reconstruction and the future of conservation
PRACTICAL	Applied ecological reconstruction Priority areas for ecological reconstruction Wetlands, lakes, urban areas, pastures, dry tropical forests
TEACHING METHODS	Lectures, debates, problem solving

RECOMMENDED READING	Botnariuc N., Vădineanu V., 1982, Ecologie, Ed. didactică şi pedagogică, Bucureşti Pârvu C., 1999, Ecologie generală, Ed. Tehnică, Bucureşti Primack B. R., Pătroescu Maria, Rozylowicz L., Iojă C., 2002, Conservarea diversității biologice, Ed. Tehnică, Bucureşti Stugren B., 1982, Probleme moderne de ecologie, Ed. Stiințifică şi Enciclopedică, Bucureşti Zaharia C. I., 1999, Studii de ecologie, Ed. Economică, Bucureşti

ASSESSMENT METHODS	Conditions	Attendance of practical classes
	Criteria	Active participation to practical activities, acquiring of the basic knowledge
	Way of evaluation	Written and oral examination
	Formula of the final mark	Test (8th week) - 50% Written exam - 50 %

COURSE TITLE	**ENDOGENETIC RISK EVALUATION AND PROGNOSIS**	CODE: JRA1106

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor DORU TOADER JURAVLE, PhD	Geography

PREREQUISITES	General Geology, General Geography, Cartography and Topography

OBJECTIVES	1. Knowledge of the content of the terms „risk" and „hazard"; 2. Knowledge of topics related to natural hazards and the classification of the latter; 3. Knowledge of the endogenetic mechanisms and their reflection within the geosystem; 4. Knowledge of limits concerning endogenetic risk prediction; 5. Knowledge of the Romanian territory regarding the endogenetic risks; 6. Comprehension and use of the geological knowledge in studying geographical disciplines and within the evaluation and mitigation of natural hazards.
COURSE CONTENTS	1. Introduction: risks and hazards; 2. Endogenetic mechanisms affecting terrestrial topography; 3. Plate tectonics, oceanic spreading, orogenic chain formation; 4. Types of endogenetic hazards: volcanic, seismic, geomorphological; 5. Volcanic risks associated to subduction zones; 6. Volcanic risks related to rift zones; 7. Volcanic risks associated to transform faults; 8. Seismic risks associated to subduction zones; 9. Seismic risks associated to rift zones; 10. Seismic risks associated to fault systems; 11. Seismic risks associated to karstic zones; 12. Mass displacement produced by endogenetic causes; 13. Risks associated to underground mining and drilling; 14. Seismic risk on the Romanian territory.
PRACTICAL	1. Geophysical methods of investigation: introduction; 2. Gravimetry – the significance of gravimetric measurements; 3. Magnetometry – the significance of magnetometric measurements; 4. Electrometry – the significance of electric measurements; 5. Seismometry – the significance of seismometric measurements; 6. Radiometry – the significance of radiometric measurements; 7. Isotopic measurements and their significance; 8. Geothermometry and the significance of geothermal measurements; 9. Use of remote sensing in the investigation of geological structures; 10. Geotechnical parameters and geotechnical analysis of terrains.
TEACHING METHODS	Exposition, discussion, problematisation, analysis of petrographic and cartographic material, individual study.

RECOMMENDED READING	Airinei (1979), *Teritoriul României şi tectonica plăcilor*, Ed. Şt. Şi Enciclopedică Buc; Atanasiu (1988), *Petrologie sedimentară*, Ed. Tehnică, Buc; Bleahu (1983, 1989), *Tectonica globală, vol. I, II,* Ed. Şt. Şi Enciclopedică Buc; Brânzilă (1997), *Elemente de cartografie geologică*. Ed. Univ. "Al. I. Cuza" Iaşi; Cârciumaru M. (1996), *Paleobotanica*, Ed. Glasul Bucovinei, Helios, Iaşi; Drăgan J. C. şi Airinei Ş. (1993), *Geoclima şi istoria*, Ed. Europa Nova; Filipescu (2002), *Stratigrafie*, Ed. Presa Univ. Cluj; Grasu (1987), *Geologie structurală*, Ed. Tehnică Buc; Lundgren W. L. (1999), *Enviromental Geology*, Printce Hall, New Jersey; Montgomery W. Carla (1992), *Enviromental Geology*, Wm. C. Brown Publishers; Naum T. şi Grigore M. (1974), *Geomorfologie*, Ed. Didact. şi Pedag., Buc; Olaru et al. (2004), *Geologie fizică*, Ed. Univ. "Al. I Cuza" Iaşi; Radu Prişcu, Popovici Adrian, Stematiu Dan, Ilie Lucian, Stere Constantin (1980) –*Ingineria seismică a marilor baraje*. Ed. Acad. R.S.R, Buc.; Rădulescu D. (1981), *Vulcani astăzi şi în trecutul geologic*, Ed. Tehnică; Rădulescu D. (1981), *Petrologie magmatică şi metamorfică*, Ed. Didact. Şi Pedag. Buc; Țicleanu şi Pauliuc (2003), *Geologie generală*, Ed. Univ. Buc.; Tătărâm Nița (1984, 1988), *Geologie stratigrafică şi paleogeografie*, vol. I, II, Ed. Tehnică, Buc.

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	**TERRITORIAL DEVELOPMENT POLICIES IN THE EUROPEAN UNION**	CODE: JRA2306

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1	1			56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor OCTAVIAN GROZA, PhD	Geography

PREREQUISITES	Spatial organization; Theory of spatial planning, Economic geography

OBJECTIVES	Understanding the importance of regional development policies in the process of widening and deepening the EU; knowledge of regional development policies of the EU and of member states; creating abilities of critical analysis of national policies for regional development and geographical expertise skills for regional policy analysis; creating the spirit of interdisciplinary approach to regional development policies
COURSE CONTENTS	Territorial planning and regional development. Principles and objectives of the planning and development policies; Construction of the EU; Construction of the regional development policy at European level I (the European Chart for regional planning. European space development scheme; Principles for sustainable development of the European continent; Lisbon strategy; Göteborg strategy ; Recommendation of the Committee of Ministers of the European Council Member States on guiding principles for sustainable spatial development of the EU; European Landscape Convention, the European Charter for rural areas; European Territorial Agenda; the Leipzig Chart on sustainable urban development, the Green Card on territorial cohesion in the European Union.)
PRACTICAL	Creating and analyzing a database of legislation on territorial development policies; Using specialized sites of the EU; Analysis of evolution scenarios of the European territory by 2030; Tools for territorial analysis and monitoring of the European space; Analysing and commenting on the role of the Green Card of territorial cohesion.
TEACHING METHODS	Interactive course based on the use of media

RECOMMENDED READING	Auphan, E.; Dézert, B. – L'Europe en mouvement. Populations, transports, aménagement, tourisme, Ellipses, Paris, 2003; Baudelle, G. ; Guy, C. – Le projet européen. Histoire, enjeux, perspectives, PUR, Rennes, 2004; Benedek, J.– Amenajarea teritoriului şi dezvoltarea regională, PU Clujeană, Cluj, 2004; Gauthier, A. – La construction européenne, Bréal, Rosnay-sous-Bois, 2005; Merlin, P.; Choay, F. – Dictionnaire de l'urbanisme et de l'aménagement, Puf, Paris, 2000; Merlin, P. - L'aménagement du territoire-Paris, Presses Universitaires de France, 2002 ; Renout, H. – Les institutions européennes, Paradigme, Caen, 2004; Rey,V. Et alii. – Atlasul României, RAO, Bucureşti, 2006; Wachter, S. (dir.) – L'aménagement en 50 tendances, Editions de l'Aube/DATAR, Paris, , 2002 ; Carta verde a coeziunii teritoriale ; www.espon.eu

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

THE FIELD OF GEOGRAPHY

Master: *PRESENT ENVIRONMENT AND SUSTAINABLE DEVELOPMENT*

COURSE TITLE	ENVIRONMENTAL CHEMISTRY	CODE: JMD 1101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	6	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor IULIANA GAGRIELA BREABAN	Geography

PREREQUISITES	Basics of environmental chemistry, The biochemistry elements

OBJECTIVES	THE STUDY AIMS TO ESTABLISH ENVIRONMENTAL CHEMISTRY CHEMICAL PROCESSES OPERATING IN AND BETWEEN ENVIRONMENTAL COMPARTMENTS AND THE WAYS IN WHICH HUMAN ACTIVITIES INTERACT AND INFLUENCE NATURAL PROCESSES. THE COURSE AIMS TO INTRODUCE BASIC CONCEPTS OF THE DISCIPLINE AND TO SHOW ITS RELEVANCE IN COMPLYING WITH RULES AND LAWS ON ENVIRONMENTAL PROTECTION.
COURSE CONTENTS	Environmental Chemistry. Introduction; Earth's atmosphere, Atmospheric regions; The greenhouse and radiation budget; Chemistry of the stratosphere. The ozone layer; Chemistry troposphere. Smog, atmospheric aerosols. Cause and effect; Hydrosphere, the water cycle in nature, water in relation to minerals and rocks. Quality of surface and depth sources of water. Processes that alter the composition of water; Physical, chemical and biological properties of water; Distribution of chemical species in aquatic systems; Lithosphere, soil chemistry. Indicators of soil health; The impact of soil pollution with anthropogenic substances; Biosphere. Impact of toxic metal pollution; Biosphere. The impact of pollution by pesticides; Biosphere. The impact of pollution by dioxins and PCBs.
PRACTICAL	General Organization: Each laboratory work takes 3 hours Safe working in the environmental chemistry laboratory. Introduction into study of the application of volumetric and spectrophotometric methods of analysis of water. Determination of chemical characteristics of water. Determination of chemical oxygen demand of water (BOD5) Determination of chemical characteristics of water. Determination of dissolved oxygen Determination of alkalinity of water by volumetric methods Determination of temporary and permanent hardness of natural waters Spectrophotometric determination of nitrates in natural waters Spectrophotometric determination of ammonium in natural waters Spectrophotometric determination of phosphorus in natural waters Determination of COD-Mn in natural waters Determination of chlorine in natural waters Determination of soil pH Determination of cationic exchange measurements in soils Evaluation of theoretical and practical knowledge
TEACHING METHODS	Interactive: exposition + discussions, case studies

RECOMMENDED READING	1. Seinfeld, J.H. and S.N. Pandis, Atmospheric Chemistry and Physics, John Wiley, New York, 1998. 2. ed. R.M. Harrison, Pollution – Cause, Effects and Control, the Royal Society of Chemistry, Cambridge, 1995. 3. Garry,W. Van Loon and Stephen J. Duffy Environmental Chemistry. A Global Perspective. Oxford University Press Inc., New York, 2000. 4. Rodica Popescu (2000)- *Hidrogeochemistry, Publisher University of Bucharest* 5. S. Mănescu, M. Cucu, M.L. Diaconescu (1994) – *Environmental Health Chemistry, Medical Publishing House, Bucharest* 6. S. Manahan (2007) – *Environmental Chemistry – Sixth Ed. CRC Press USA* 7. Ian Williams (2001), *Environmental Chemistry* , *ed John Willey & Sons* 8. Mioara Surpateanu, (1994) *Environmental Chemistry, Ed. Univ. Tehnice Iasi,*

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	ATMOSPHERIC POLLUTION AND CLIMATE CHANGE	CODE: JMD1102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OB

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	ROMANIAN

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor LIVIU APOSTOL, PhD	Geography

PREREQUISITES	Meteorology and climatology

OBJECTIVES	Knowing the physical structure and chemical composition of the atmosphere, its pollution sources and pollutants. Chemical reaction of the noxae with the natural compounds and pollutants of the atmosphere, with the solar radiation, residence time. Role of the meteo-climatic factors in noxae emission, propagation, dispersion and stagnation processes. Effects of atmospheric pollutants on the climate. Changes at the level of the active surface. Amplification of the green house effect and destruction of the ozone layer. Climate change and variability, global, regional and local coordinates.
COURSE CONTENTS	I: Radiation laws. Laws of perfect gases. Heat propagation into the atmosphere. Radiation-caloric balance at the terrestrial surface and in the atmosphere/II: Physical structure and chemical composition of the atmosphere. Physical and chemical characteristics of the troposphere. Carbon dioxide, ozone, water vapours, condensation nuclei/III: Sources of pollution of the atmosphere, pollutants (gases and aerosols). Changes produced in the last decades in the structure and volume of the emissions/IV: Changes of the active surface characteristics as a consequence of anthropic activities, with impact on the climate/V: Chemical reaction of the atmospheric noxae with various natural compounds of the atmosphere, with the solar radiation, reactions between the atmospheric pollutants, residence time of the noxae in the atmosphere, influence of climate factors on these processes/VI: Role of the meteo-climatic factors in the noxae emission, propagation, dispersion and stagnation processes. Wind and windstill (Beaufort 0), temperature inversions, insolation, air humidity, nebulosity, liquid and solid precipitations/VII: Transport processes in the high troposphere, transborder transport of gaseous noxae and aerosols, deposition of aerosols, acid rains, atmosphere self-cleaning, influence of climate factors on these processes/VIII: The influence of air pollution on meteorological and climate parameters and phenomena. Evolution of pollution levels at international, European and national level. Major changes in the volume and structure of industrial manufacturing in Romania that caused the decrease of the atmospheric pollution level. Today's levels of emission/IX: Gases having a role in the destruction of the ozone layer. Evolution of the phenomena. International reaction. Results/X: Amplification of the green house effect/XI: Climate variability. The paleo-climate and the climate of the historic and instrumental times/XII: Global climate change, regional and local climate change. Tendencies on the EU and on Romanian territory/XIII: Climate change, the main cause of global, regional and local changes of the environment/XIV: International and national context regarding climate change. Conferences, objectives, protocols, international legislation, action, perspectives.
PRACTICAL	General organization: Week I: Notions about pollution. Atmospheric pollution. Gaseous, liquid and solid noxae. Notions about sources, characteristics of emissions/Week II: Sample collection of atmospheric noxae. Classical methods. Analysis. Data interpretation. Standards/Week III: Automated methods to determine atmospheric noxae/Week IV: Collecting dusts in suspension and sedimentable dust samples. Determination. Interpretation of results/Week V: Acid rains. Collecting precipitation samples for analysis. Analyzed parameters. Analysis. Interpretation of results/Week VI: Meteo-climatic factors involved in the emission, transport, dispersion or stagnation of atmospheric noxae. Topoclimatic correlative measurements of these elements and meteo-climatic phenomena. Reporting at the base meteorological station/Week VII: Temperature, pressure, volume, density in the atmosphere. Meteorological measurements on the active surface, satellite determinations/Week VIII: History of instrumental meteorological measurements. Changes of equipments, methodology, station location. Local changes of the active surface and changes of air characteristics in the areas of the stations/Week IX: Representativeness of climate data series, homogenization methods/Week X: Statistical analysis of the variability and cyclicity in the climate elements and phenomena during the instrumental period/Week XI: Tendencies of the main meteorological elements and phenomena at a global level and in Europe/Week XII: Tendencies of the main meteorological elements and phenomena in Romania/Week XIII: Calculation of the air temperature evolution and climatic changes in Iasi/Week XIV: Knowledge evaluation.
TEACHING METHODS	Lecture, debate, modelling – problematisation.

RECOMMENDED READING	
	APOSTOL L., CATANA C., MAXIM NICULINA (1995), *Influenta factorilor climatici in propagarea si dispersia poluantilor atmosferei in Subcarpatii Moldovei,* Lucr. sem. "Principii si tehnologii moderne pentru reducerea poluarii atmosferice", Piatra Neamt 1994, Agentia de Protectie a Mediului - Statiunea de Cercet. "Stejarul", Piatra Neamt. BĂLTEANU, D., ŞERBAN, MIHAELA (2005), *Modificările globale ale mediului. O evaluare interdiscipliară a incertitudinlor*, Edit. C.N.I. Coresi, Bucureşti. BÂZÂC, GH., COTARIU, R. (1987), *Estimări privind variația seculară a temperaturii aerului într-un sector al emisferei nordice,* Stud. Şi cercet. de meteo., nr.1, I.M.H., Bucureşti.

ASSESSMENT METHODS		
	Conditions	Attendance of lectures and practical works
	Criteria	Learning the fundamental knowledge
	Way of evaluation	Test and project for practical works; partial and final written exam for the course.
	Formula of the final mark	Partial exam 50% (of which 1/3 for the project); final exam 50% (of which 2/3 for the concepts taught during the lectures and 1/3 for the practical works)

COURSE TITLE	NATURAL RISKS	CODE: JM1103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	ROMANIAN

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor LIVIU APOSTOL, PhD Professor GHEORGHE ROMANESCU, PhD Professor ION IONIȚĂ, PhD Professor CONSTANTIN RUSU, PhD	Geography

PREREQUISITES	Meteorology and climatology

OBJECTIVES	Learning the notions related to natural risks and climate risks, respectively. Importance of the climate risks as a determining factor and their role in the triggering other natural risk categories. Characteristics of the climate factors, variability, cyclicity, change, hazard. Anthropic changes of the active surface and changes in the physical and chemical composition of the atmosphere, as factors in the amplification of climate risk phenomena. Global and regional characteristics of climate risks. Climate risks in Romania. Knowing the physical structure and chemical composition of the atmosphere, pollution sources and atmospheric pollutants.
COURSE CONTENTS	Week 1. Introduction. Terminology. Significance. Importance of climate risks and their role in the triggering other categories of natural risks. Climate and topoclimate in the study of climate risks. Analysis of anthropic changes of the active underlying surface and major changes produced in the atmosphere, as factors in the amplification of climate risk phenomena. Week 2. Knowing the specificity of climate factors, variability, cyclicity and hazard in climate risks production. Variability, cyclicity, change. Climate change. Week 3. Climate risk in the world and in the EU. Climate risk in Romania. Major events. Factors of climate risk in the warm and cold season. Prognosis of the risk phenomena, insurance, prevention, control degree, legislative and organization measures.
PRACTICAL	Week 1. Presentation of basic bibliography on climatology regarding the climate risk phenomena. The meteorological network, layout, representativeness, methods of measuring the parameters of climate risk phenomena. Week 2. Terminology used in the meteorological practice. Climate elements and phenomena in Romania with climate risk potential. Use of climate data. Analysis of topoclimate conditions that can amplify the effects of climate risks. Week 3. Climate risks syntheses, graphs and maps. Prognosis of climate risks phenomena. Alerting system. International, European and national legislation.
TEACHING METHODS	

RECOMMENDED READING	
	ARMAŞ IULIANA (2008), *Percepția riscurilor naturale: cutremure, inundații, alunecări,* Edit. Universității din Bucureşti. BĂLTEANU, D. (1992), *Natural hazards in Romania,* R.R. Géogr., t. 36, Edit. Academiei, Bucureşti. BĂLTEANU, D., ŞERBAN, MIHAELA (2005), *Modificările globale ale mediului. O evaluare interdiscipliară a incertitudinlor*, Edit. C.N.I. Coresi, Bucureşti. BOGDAN, OCTAVIA (1992), *Asupra noțiunilor de ,,hazarde", ,,riscuri" şi ,,catastrofe" meteorologice,* S.C.G., t. XXXIX, Bucureşti. BOGDAN, OCTAVIA, NICULESCU, ELENA (1999), *Riscurile climatice din România,* Inst. de Geogr., Bucureşti. CIULACHE, S., IONAC, NICOLETA (1995), *Fenomene atmosferice de risc şi catastrofe climatice,* Edit. Şt., Bucureşti. GOȚIU, DANA, SURDEANU, V. (2007), *Noțiuni fundamentale în studiul riscurilor naturale,* Presa Universitară Clujeană, Cluj-Napoca.

ASSESSMENT METHODS		
	Conditions	Attendance of lectures and practical works
	Criteria	Learning the fundamental knowledge
	Way of evaluation	Test and project for practical works; partial and final written exam for the course
	Formula of the final mark	Partial exam 50% (of which 1/3 for the practical work activity); final exam 50% (of which 1/3 for the practical work knowledge)

COURSE TITLE	TECHOLOGICAL AND SOCIAL RISKS	CODE: JMD 1104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Adrian GROZAVU, PhD	Geography

PREREQUISITES	Cartography; Natural and anthropic hazards and risks

OBJECTIVES	Analysing the risk phenomena or events having technological and social origin, their causes, forms of manifestation and effects and also their possible ways of management. Forming the ability for the research and utilization of the information and of statistical data for the analysis and interpretation of the concrete situations linked with the occurrence of these phenomena. Practical materialization of theoretical knowledge concerning the possibilities of management, elaboration of support-materials for the activity of prevention and dismissing of risk phenomena effects.
COURSE CONTENTS	I. Technological risks – types, causes, effects, management: Industrial risks; Mining risks; Large scale structure risks; Transportation risks; Derelict industrial zone risks; Nuclear risks; Fires; Pollution; Health risks; Answers to technological risks. II. Social risks: Urban violence and unsafety; Poverty, unemployment; Unsafe urban territories; Terrorism; Answers to social risks. III. Estate diagnosis and risk prognosis.
PRACTICAL	1. Analysis and interpretation of technological and social risk situations. 2. Perception, representation and modelling of technological and social risks. 3. Drawing up graphical and cartographical material regarding the spatial distribution of risks (vulnerability maps, risk maps). 3. Elaboration and presentation of estate diagnosis and risk prognosis, with optional subjects.
TEACHING METHODS	Lecture, debate, modelling – problematisation

RECOMMENDED READING	1. Bennett, B., 2007, *Understanding, assessing, and responding to terrorism: protecting critical infrastructure and Personnel*, John Wiley & Sons, New Jersey 2. Beck, U., 2001, *La société du risque sur la voie d'une autre modernité*, Edit. Aubier, Paris. 3. Chiles, J. R., 2001, *Inviting disasters, lesson from the edge of technology. An inside look at catastrophe and why they happen*, Harper Business, London. 4. Dubois-Maury, Joceline, Chaline, Claude, 2002, *Les risques urbains,* 2e édition, Armand Colin, Paris. 5. Soullez, C., 1999, *Les violences urbaines*, Ed. Milan, Paris. 6. Walter, J., 2002, *World disasters report 2002, focus on reducing risk*, Kumarian Press, London

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	RECYCLIG OF WASTE AND RESIDUUM	CODE: JMD1207

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)		SEMESTER		STATUS (CO-COMPULSORY/OP-OPTIONAL)	

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	60	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor RADU LACATUSU, PhD	Geography

PREREQUISITES	Environmental pollution; Environmental chemistry; Environmental geography

OBJECTIVES	Acquiring knowledge of the soil and of the history and development of waste recycling in the country and abroad. Knowing the sources and forms of waste and their impact on the environment. Knowing the methods of recycling waste and residuum.
COURSE CONTENTS	a. General elements on waste and residuum; definition, classification, technological principles. b. Sources and types of waste, types of impact, recovery and recycling technologies b. 1. Industrial waste from transport and buildings: description, properties, recycling technologies. Recycling as raw materials in the source industries. Recycling of industrial waste in agriculture. Organic residuum. Zootechnic residuum. Categories, composition, storage, treatments. Recycling in crop production. Impact of technologies for conversion of organic waste into fertilizers. b. 2. Municipal waste and street; definition, composition, classification, collection, storage, depositing at the dump, composting, incineration. b. 3. Recycling waste water. Sewage plants. Sludge residues. Waste water use in agriculture. Waste water categories, methods of administration, effect on soil and plants.
PRACTICAL	a. Municipal waste and street waste. Collection methods and physical and chemical characteristics. Determination of physical and chemical properties. b. Choice of land and construction of landfills for waste disposal. c. Incinerators for waste (construction, methods). d. Waste water treatment station. e. Visit to the waste water treatment station in Iasi. f. Economic consideration regarding the recycling of waste and residuum. g. Devising a project regarding the construction of a waste depositing site.
TEACHING METHODS	Lecture, discussion, modelling

RECOMMENDED READING	Bularda G., Bularda D., Catrinescu T., 1992, *Reziduuri menajere, stradale i industriale*, Ed. Tehnică, Bucureti Brunner C.R., 1988, *Incineration system-Selection and design,* Reston Catroux G., Cermon J.C., Graffin Ph.,1974, *L'utilisation du sol comme systeme epurator,* Ann. Agron., 25,2-3, 179-193 Căpitanu V., Dumitru M., Toti M., Răducu Daniela, Popa Daniela, Motelică M.,1999, *Impactul emisiilor termocentralelor asupra mediului ambiant. Recultivarea haldelor de cenuă,* Ed. Roprint, Cluj-Napoca Dumitru M., Răuă C., Gamen Eugenia, Damian Maria, Dumitru Elisabeta, 1993, *Influena fertilizării cu compost obinut din gunoi menajer asupra solului i produciei agricole*, Analele ICPA, volLII, 295-305 Fecher G., 1982, *Evacuarea i valorificarea reziduurilor menejere*, Ed. Tehnică, Bucureti Gobjilă W., 1985, *Folosirea apelor uzate în agricultură*, Ed.Ceres, Bucureti Ionescu Al., Jinga I., tefanic Gh., 1985, *Utilizarea deeurilor organice ca îngrăământ*, Ed.Ceres, Bucureti Jianu N., *Alecsandrescu a., 1979, Colectarea, neutralizarea i valorificarea pentru agricultură a reziduurilor menajere, stradale i industriale,* Ed. Ceres, Bucureti Jurubescu V., 1977, *Reciclarea nepoluantă a reziduurilor zootehnice*, Ed. Ceres, Bucureti Lăcătuu R., Kovacsovics Beatrice, Plaxienco Doina, Lungu Mihaele, Preda Mihaele, Mihalache Daniela, 2001, *Effect of urbanwaste dump in Glina-Bucureti upon environment,* Soil Science, XXXV, 1-2, 128-136

ASSESSMENT METHODS	Conditions	Attendance of practical work activities
	Criteria	Active participation in laboratory activities
	Way of evaluation	Oral and written evaluation
	Formula of the final mark	Assessment of participation in the laboratory activities 50% Answers at the final examination 50%

COURSE TITLE	GIS TECHNIQUES IN LAND USE AND PLANNING	CODE: JMD1111

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor ROMAN AURELIAN-NICOLAE, PhD	Geography

PREREQUISITES	

OBJECTIVES	G.I.S introduction; implementing the importance and complexity of G.I.S application, which is essential in land use analysis. Defining and emphasizing the role of G.I.S in the physiognomy, functionality and structure analysis of land use and inductive risks. Acquiring advanced knowledge in understanding and using G.I.S. Emphasizing the specific applicative character of the main G.I.S techniques; principles, main aspects, methods, tools and results of risk and land use analysis using G.I.S techniques and methods.
COURSE CONTENTS	I: Land planning: concepts and applications. Land planning principles/II: Spatial structures and land planning. GIS: concepts and data structures/III: Spatial structures analysis using GIS/IV: Hazards and risks: GIS and legal framework/V: GIS and land planning plans: from concepts to application/VI: Data acquisition, management and storage with GIS/VII: Physical land components analysis using G.I.S techniques/IX: Analysis of social and economical land components using G.I.S techniques/X: G.I.S in natural risk analysis (I)/XI: G.I.S in natural risk analysis (II)/XII: G.I.S in the analysis of social and economical risks (I)/XIII: G.I.S in the analysis of social and economical risks (II)/XIV: G.I.S data and workflow regarding land use/XV: G.I.S design and implementation in land use
PRACTICAL	Week I: Land planning: concepts and applications. Diagrams of land planning principles/Week II: Spatial structures and land planning. GIS: concepts and diagrams of data structures/Week III: Spatial structure analysis using GIS/Week IV: Hazards and risks: GIS and legal framework/Week V: GIS and land planning plans: from concepts to application/Week VI: Data acquisition, management and storage with GIS/Week VII: Analysis of physical land components using G.I.S techniques/Week IX: Analysis of social and economical land components using G.I.S techniques/Week X: G.I.S in natural risk analysis (I)/Week XI: G.I.S in natural risk analysis (II)/Week XII: G.I.S in the analysis of social and economical risks (I)/Week XIII: G.I.S in the analysis of social and economical risks (II)/Week XIV: G.I.S data and workflow regarding land use/Week XV: G.I.S design and implementation in land use
TEACHING METHODS	Lecture, debate, case studies, on-screen demos, forwarding environmental issues and brainstorming

RECOMMENDED READING	http://ec.europa.eu/atoz_en.htm (The European Commission - A to Z) http://www.mmediu.ro – Ministerul Mediului si Gospodaririi apelor Băican V. (2005) – Elemente de cartografie si topografie Burrough P., McDonnell Rachael (1998) - *Principles of Geographical Information Systems*, Oxford University Press, Oxford. Dent, Borden (1999) – *Cartography: Thematic Map Design*. McGraw-Hill, NY. Donisă V., Donisă I. (1998) - *Dicționar explicativ de teledetecție și sisteme informaționale geografice*, Ed. Junimea, Iaşi. Donisă, I. *et al.* (1980). *Aerofotointerpretare geografică*. Bucureşti: Didactică şi Pedagogică. 196 p. Maguire D.J., Goodchild M.F., Rhind D. (1991) - *Geographical Information Systems: Principles and Applications*, Longman Scientific and Technical. P.A.Longley (2005) – GIS and Science, Ed. John Wiley and Sons. Skrdla M. (1992) - *A Guide to Map and Image Processing*, MicroImages Press, Nebraska. Stângă I.C (2007) – Riscurile naturale. Noțiuni şi concepte. Editura UAIC Iaşi

ASSESSMENT METHODS	Conditions	Laboratory attendance (min. 75%)
	Criteria	Active involvement in laboratory activities
	Way of evaluation	Oral and written evaluation
	Formula of the final mark	FINAL EVALUATION = (Mark I + Mark II) / 2 I. 7th week –50% of final mark Minimum mark is obtained from: 1. relevant participation to discussions and laboratories – 20 %; 2. projects – 20%; 3. knowledge evaluation test (lectures + laboratories) – 60%. II. 14th week –50% of final mark Idem Mark up-grade and re-evaluation - scheduled in the 17th week; - Ist and IInd point marks still remain valid; - re-evaluation test includes all lecture and laboratory subjects;

COURSE TITLE	MONITORING. ENVIRONMENTAL MANAGEMENT IN ROMANIA	CODE: JMD2302

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	D	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor ROMAN AURELIAN-NICOLAE, PhD	Geography

PREREQUISITES	

OBJECTIVES	Processing environment units by monitoring main significant characteristics, including the ones which have major impact over the health of the population. Introduction in environment monitoring issues. Environmental policies and the diachronic analysis of strategy monitoring manners that have been long-term implemented in the field. Detailed knowledge of political and administrative structures related to the field of environmental issues. Implementing knowledge of the main jurisdictional thematically grouped statements conducting environmental administration and monitoring. Implementing knowledge over authorisation procedures in the environmental field.
COURSE CONTENTS	I: Environment monitoring: introductory principles/II: National environment monitoring system/III: Environment monitoring of local areas/IV: Policies for environment monitoring/V: National and local administrative and regulatory structures for environment monitoring (EU)/VI: National and local administrative and regulatory structures for environment monitoring (RO)/VII: Internal organisation and communication flows between main Romanian environmental administrative structures/VIII: E.U. laws for environment/IX: National environment laws. Horizontal legislation/X: Air quality. Waste management/XI: Water quality. Protected areas/XII: Pollution control. Chemicals. Genetic modified organisms/XIII: Noise. Civil protection/XIV: Nuclear security. Trans-border cooperation
PRACTICAL	Week I: National environment monitoring system/Week II: Biodiversity/Week III: Life Natura program/Week IV: Protected areas/Week V: Environment management/Week VI: Modern systems for environment management/Week VII: EPA structure and management/Week/VIII: Authorising activity with significant impact over the environment/Week IX: National environment laws. Horizontal legislation/Week X: Laws: Air quality. Waste management/Week XI: Laws: Water quality. Protected areas/Week XII: Laws: Pollution control. Chemicals. Genetically modified organisms/Week XIII: Laws: Noise. Civil protection/Week XIV: Laws: Nuclear security. Trans-border cooperation
TEACHING METHODS	Lecture, debate, forwarding environmental issues and brainstorming case studies

RECOMMENDED READING	http://www.ngo.ro/legislatie/ Baza de date cu legislatie de mediu http://ec.europa.eu/atoz_en.htm (The European Commission - A to Z) http://www.mmediu.ro (Ministerul Mediului si Gospodaririi apelor) si si Luca D. (2007) – *Ghid european de legislație şi bune practici în domeniul mediului şi dezvoltării durabile*, Fundația Corona, Iaşi Maguire D.J., Goodchild M.F., Rhind D. (1991) - *Geographical Information Systems: Principles and Applications*, Longman Scientific and Technical

ASSESSMENT METHODS	Conditions	Laboratory attendance (min. 75%)
	Criteria	Active involvement in laboratory activities
	Way of evaluation	Oral and written evaluation
	Formula of the final mark	FINAL EVALUATION = (Mark I + Mark II) / 2 I. 7th week –50% of final mark Minimum mark is obtained from: 1. relevant participation to discussions and laboratories – 20 %; 2. projects – 20%; 3. knowledge evaluation test (lectures + laboratories) – 60%. II. 14th week –50% of final mark Idem Mark up-grade and re-evaluation - scheduled in the 17th week; - Ist and IInd point marks still remain valid; - re-evaluation test includes all lecture and laboratory subjects;

COURSE TITLE	DIGITAL THEMATIC CARTOGRAPHY	CODE: JMD2303

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor MIHAI CIPRIAN MARGARINT, PhD	Geography

PREREQUISITES	Cartography with elements of Topography, General Geography

OBJECTIVES	Acquiring the theoretical and practical issues related to the creation of digital maps; acquiring modern methods in cartography (data acquisition, processing and extracting spatial referenced information). The specificity of the creation of thematic maps through numerical methods.
COURSE CONTENTS	Introduction, definitions, terminology. Thematic maps. Systems of representing data in digital cartography. The vector system (graphic elements, representation). Raster system; digital map resolution; relation to the proportion scale. Attributes. Spatial data structures. Topology. Structural schemes of systems; modelling systems. Methods of spatial data acquisition. Scanning, digitizing. Topographic measurements; total stations. Methods of spatial data acquisition. Aerophotogrammetric images. Satellite images. Global positioning system (GPS). Image processing; editing; symbolizing. Geographic modelling. Bi and three-dimensional models; properties; exploring. Mapping natural and anthropic elements. Representing natural elements of the geosystem. Representing anthropic elements of the geosystem. Map editing.
PRACTICAL	Activity planning. Digitizing. Interpolation. Knowledge testing. Map editing. Map printing. Final evaluation
TEACHING METHODS	Lectures, debates, modelling, problem solving

RECOMMENDED READING	Armaş, Iuliana, Damian, R (2001) – Cartarea şi cartografierea elementelor de mediu, Edit. Encicl., Bucureşti. Baduț, M. (2004) – GIS, fundamente practice. Edit. Albastră, Cluj-Napoca. Haidu, I., Haidu, C. (1998) – SIG – Analiză spațială, Edit. HGA, Bucureşti. Imbroane A. M., Moore D. (1999) – *Inițiere în GIS şi teledetecție*, Presa Univ. Clujeană, Cluj Napoca. Mărgărint, M.C. (1999) – Cartografie cu elemente de topografie, Univ. „Al. I. Cuza", Iaşi, Curs IDD. Nițu, C. ş.a. (2002) – Sisteme informaționale geografice şi cartografie computerizată, Edit. Univ. din Bucureşti. Rădoane Maria şi colab. (1996) – Analiza cantitativă în geografia fizică, Edit. Univ. „Al. I. Cuza", Iaşi Săndulache, Al., Sficlea, V. (1970) – Cartografie – Topografie, Edit. Did. Şi Ped, Bucureşti. Zeiler, M. (1999) – Modelling our World, New York.

ASSESSMENT METHODS	Conditions	Attendance of practical classes
	Criteria	Active participation to practical activities
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final project

COURSE TITLE	WATER MANAGEMENT. EUROPEAN PRINCIPLES AND REGULATIONS	CODE: JMD2304

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	III	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor GHEORGHE ROMANESCU, PhD	Geography

PREREQUISITES	General (physical and human) geography; Geography of natural resources

OBJECTIVES	Knowledge of water as a natural substance, its occurrence forms in nature, quantitative and qualitative characteristics, distribution in the world, relationship with the other components of the environment, and its importance for people. Evaluation of natural resources and of the ways of exploiting them. Capacity to locate places and facts on the map and in the environment. Understanding the spatial dimensions of water management problems. Establishing the European principles and regulations regarding water management.
COURSE CONTENTS	W.1. Introduction. W.2. Water resources and requirements. W.3. Water and sustainable development. W.4, 5. Evolution of European policy in the field of water. W.6, 7. Evolution of the Romanian policy in the field of water. W.8, 9. International cooperation of Romania in the field of water management. W.10, 11, 12. Management plan for the hydrographical basin. W.13, 14. Methods of elaborating the guiding lines of river basin planning and management.
PRACTICAL	W.1-5. Projects on water management in Romania. W.6-10. Projects on water management in Europe and USA. W.11-14. Landslides in the Moldavian Plain, Barladului Plateau and the Eastern Carpathians.
TEACHING METHODS	Lecture, conversation, problematisation, heuristic conversation, description.

RECOMMENDED READING	Drobot R. (2001), *Conservarea şi protecția resurselor de apă,* Revista Hidrotehnica, vol.46, nr.2-3. Mihailovici J.M., Şerban P. (2006), *Planul de management al bazinului hidrografic,* A patra conferință a hidroenergeticienilor din omănia, Bucureşti. Mustățea A (2005), *Viituri excepționale pe teritoriul României,* Editura Institutului Național de Hidrologie şi Gospodărire a Apelor, Bucureşti. Nijland H., Menke U. (2005), *Flood Risk Management and Multifunctional Land Use in River Catchments,* Conference Proceedings Mainz, Germany 17th -19th Oct. Romanescu Gh. (2002), Medii de sedimentare terestre şi acvatice. Delte şi estuare, Edit. Bucovina Istorică, Suceava. Romanescu Gh. (2006), *Inundațiile ca factor de risc,* Editura Terra Nostra, Iaşi. Sorocovschi V. (2003), *Complexitatea teritorială a riscurilor şi catastrofelor,* In: Riscuri şi catastrofe, Editor Vistor Sorocovschi, Editura Casa Cărții de Ştiință, Cluj-Napoca. Şerban P. (2003), *Politica europeană în domeniul apei – baza dezvoltării durabile a gospodăririi apei în România,* Revista Hidrotehnica, vol.48, nr.3. Şerban P., Gălie A. (2006), *Managementul apelor. Principii şi reglementări europene,* Editura Tipored, Bucureşti. Şerban P., Jula G. (2002), *Directiva Cadru 2000/60 a UE în domeniul apei,* Revista Hidrotehnica, vol.47, nr.3

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	NATURAL AND HUMAN POTENTIAL OF THE ENVIRONMENT. PERSPECTIVES	CODE: JMD2406

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	4	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor IRINA UNGUREANU, PhD Professor IONEL MUNTELE, PhD	Geography

PREREQUISITES	General (physical and human) Geography; Environmental Geography

OBJECTIVES	Knowledge and approach of the natural and human potential of the environment. Identification and evaluation of these elements, between classical indicators using a sectorial and a synthetical methodology. The variability of the natural and human potential is analysed at actual level and from the systemic perspectives.
COURSE CONTENTS	1.Sistemical knowledge of the following concepts: potential, favourability, vulnerability 2.Identification and evaluation of the natural potential 3.Perspectives of the natural potential 4.Human potential of the environment: theoretical approach and indicators 5.The diagnosis and the prognosis of the human potential of the environment 6.The cartographical representation and interpretation of the human potential of the environment
PRACTICAL	1.Spatial distribution of the thermic and pluviometric gradients 2.Natural favourability for the settlement 3.The study of the spatial distribution of the human potential
TEACHING METHODS	Exposition, heuristic conversation, description, problematisation

RECOMMENDED READING	Bogdan Octavia (1980) – Potențialul climatic al Bărăganului, Editura Academiei Române, Bucureşti Gâştescu,P.(1985) – Resursele de apă ale României şi repartiția lor în teritoriu, Terra, 3-4 Lupaşcu,Gh., Patriche,Cr. (2000) – Baza mondială de referință pentru resursele de sol, Editura Universității « Al.I.Cuza », Iaşi Ungureanu, Al. (2000) a. – Geografie umană generală, Universitatea « Al.I.Cuza », Iaşi Ungureanu, Irina (2005) – Geografia mediului, Edit.Univ. "Al.I.Cuza", Iaşi Ungureanu Al., Muntele I. (2006) – Geografia populației, Sedcom Libris, Iaşi ***Population Reference Bureau of UN, New York (www.prb.org) ***Institute National d'Etudes Démographique, Paris (www.ined.fr)

ASSESSMENT METHODS	Conditions	Getting at least 1.5 points at practical work (out of a maximum of 3 points) Compulsory attendance to practical work
	Criteria	Thorough acquisition of certain fundamental field concepts Capacity of synthesising the acquired knowledge in a wider geographical context Capacity of applying the acquired knowledge to concrete situations
	Way of evaluation	Continuous evaluation during practical work Final project
	Formula of the final mark	50% evaluation during practical work, 50% final

COURSE TITLE	ENVIRONMENTAL SURVEYS, IMPACT STUDIES AND ENVIRONMENTAL MANAGEMENT PROJECTS	CODE: JMD2409

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	94	5	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor RADU LACATUSU, PhD	Geography

PREREQUISITES	Environmental pollution; Environmental chemistry; Environmental geography

OBJECTIVES	Knowledge of the legislative framework on the achievement of environment balance, impact assessment and environmental management projects. Knowledge of the environmental permit system. Strategic environmental risk assessment. Knowing the elements of a system of environmental management.
COURSE CONTENTS	a. Laws in the field of environmental protection, in general and in elaborating environmental balance impact studies and environmental management projects, in particular. b. Environmental authorizing, standardized and specific act. The procedure for obtaining environmental authorizations and agreements. c. The methodology to achieve environmental balance of level 0, level I and level II. d. Structure of reports concerning environmental balance. e. Evaluation of environmental impact. 1. General. 2. Components and impact assessment stages. 3. Indicators of impact studies. 4. Methods and techniques of environmental impact assessment. 5. Environmental audit. 6. Structure of the environmental impact assessment report. f. Environmental Management Project. General. g. Systems of environmental management. Opportunities and advantages. h. Requirements of the management system. i. Fundamental concepts in risk assessment. j. Industrial risk analysis and environmental emergencies. k. Structure of a report related to environmental management projects.
PRACTICAL	Devising projects on topics related to average balances at all three levels. Creating impact studies related to the economic activities of different units in industry and agriculture. Trade, transport, tourism (case study). Implementing an environmental management system in agreement with the requirements of ISO 14001.
TEACHING METHODS	Lecture, discussion, modelling.

RECOMMENDED READING	1. Breabăn Iuliana Gabriela, 2009, Evaluarea impactului asupra mediului, Ed. Univ. Al.I.Cuza Iaşi 2. Chirvase Ana Aurelia, Pena Elisabeta, 2003, Managementul proiectelor de mediu şi dezvoltarea Durabilă, Ed. Printech, Bucureşti 3. Dumitru M., Simota C., Borza I., Țărău D., 2008, Evaluarea impactului şi a riscului ecologic, Ed. Eurobit, Timişoara 4. Jelev I. Brejea R., 2006, Sisteme aplicate de management ale mediului înconjurător, Ed. Universității din Oradea 5. Lester R. Brown, 2008, Planul B3.0 Mobilizarea generală pentru salvarea civilizației, Ed.Tehnică, Bucureşti 6. Mac I., 2003, Ştiința mediului, Ed. Europontic, Cluj-Napoca 7. Marsh W. M., Grossa J. Jr., 2002, Environmental Geography, John Wiley and Sons, New York, Chichester, Weinheim, Brisbane, Toronto, Singapore 8. The World Watch Institute, Starea Lumii. Viitorul nostrum urban-2007, Ed. Tehnică, Bucureşti

ASSESSMENT METHODS	Conditions	Attendance of practical work activities
	Criteria	Active participation in laboratory activities
	Way of evaluation	Oral and written evaluation
	Formula of the final mark	Assessment of participation in the laboratory activities 50% Answers at the final examination 50%

THE FIELD OF GEOLOGY

Master: *ENVIRONMENTAL GEOCHEMISTRY*

COURSE TITLE	CHEMICAL ANALYSIS OF ROCKS AND ORES	CODE: GC 4101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	214	9	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Traian Gavriloaiei, PhD	Geology

PREREQUISITES	General Chemistry; Analytical Chemistry; Hydrogeochemistry; Pedogeochemistry

OBJECTIVES	- to develop the working skills and analysis for various types of rocks; - to perform a chemical analysis using a general work scheme and to choose a suitable method of analysis for the main cations; - to perform bulk chemical analysis of minerals and rocks.
COURSE CONTENTS	1. Introduction. Preliminary operations. 2. Methods for wet disintegration of geological samples. 3. Methods for dry disintegration of geological samples. 4. Disintegration under pressure; disintegration with microwaves. 5. Chemical analysis of silicate rocks, the general procedure for silicates (limestones or dolomites/barites/phosphorites or apatites), work scheme, main components (silicon, total iron, titanium, aluminium, calcium, magnesium, manganese, phosphorus, alkalies, water). 6. Quick schemes for silicate analysis.
PRACTICAL	1. Preliminary operations for analysis. 2. Analysis of water content from ores (H_2O^-, H_2O^+, H_2O_t, P.C.) 3. Dry disintegration of the sample. 4. Gravimetric analysis of the silica and oxide group. 5. Spectrophotometric analysis of total iron, phosphorus, manganese and titanium. 6. Titrimetric analysis of calcium and magnesium. 7. Analysis of alkaline metals.
TEACHING METHODS	Lectures, discussions, problematisation, learning through discovery

RECOMMENDED READING	Easton A.J. (1972). Chemical Analysis of Silicate rocks, Elsevier Publishing Co., London. Gavriloaiei T. (2007). analiza chimica a rocilor, Ed. Sedcom Libris, Iasi. Jeffery P.G. (1983). Metode chimice de analiză a rocilor, ed. a doua, Ed. Tehnică, Bucureşti. Johnson W.M., Maxwell J.A. (1981). Rock andMineral Analysis, John Wiley & Sons, New York. Skoog D.A. et al. (2000). Analytical Chemistry, an introduction, 7th ed., Sauders Coll. Publishing, New York.

ASSESSMENT METHODS	Conditions	Fulfilment of professional duties (lectures, practical works or seminars)
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.75 E + 0.25 D

COURSE TITLE	SPECTROMETRY IN GEOSCIENCES	CODE: GC 4102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	214	9	M	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assoc. Professor Haino Uwe Kasper, PhD	University of Köln, Germany
	Professor Nicolae Buzgar, PhD	"Al. I. Cuza" University of Iasi, Geology

PREREQUISITES	Chemistry; Crystallography; Mineralogy; Petrology

OBJECTIVES	To provide basic knowledge regarding modern methods of spectroscopy used in the study of chemical composition and geological formations
COURSE CONTENTS	1. Introduction 2. Atomic absorption spectrometry 3. X-ray fluorescence spectrometry 4. Inductively coupled plasma emission spectrometry
PRACTICAL	Mastering of the practical skills necessary for the application of the specific spectrometric methods required in order to quantitatively determine the component chemical elements of minerals, rocks, ores and soils
TEACHING METHODS	Lectures, discussion, problem-solving and independent observation

RECOMMENDED READING	Gill R. Ed. (1999). Modern Analytical Geochemistry. Longman. Handbook of silicate rock analysis (2007). Blackie (UK), Chapman & Hall (USA) Robin Gill (eds) (1997) Modern Analytical Geochemistry, An introduction to quantitative chemical analysis for earth, environmental and materials scientists, Longman. Jarvis K.E., Gray Alan L., Houk S. (2007). Handbook of Inductively Coupled Plasma Mass Spectrometry, Viridian Publishing, UK, Phil J. Potts. Kirkbright G.F., Sargent M. (1974). Atomic Absorption and Fluorescence Spectroscopy. Academic Press. Montaser A. (ed) (1998). Inductively Coupled Plasma Mass Spectrometry, Wiley –VCH. Thompson M., Walsh J.N. (2007). Handbook of Inductively Coupled Plasma Atomic Emission Spectrometry, Viridian Publishing, UK. Van Grieken R.E., Markowicz A.A. (eds) (2002). Handbook of X-Ray Spectrometry (2nd ed.). Marcel Dekker, Inc., New York.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and practical work)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + Written examination
	Formula of the final mark	0.5 E +0.5 P

COURSE TITLE	RAMAN SPECTROGRAPHY	CODE: GC 4103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		1		28	152	6	M	English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Nicolae Buzgar, PhD	Geology

PREREQUISITES	Chemistry; Crystallography; Mineralogy; Petrology; Geochemistry

OBJECTIVES	To provide basic knowledge regarding Raman spectrography and the method employed in the study of minerals and rocks (qualitative and quantitative determinations).
COURSE CONTENTS	Introduction. The magnitude of Raman dispersion. The collection and detection of dispersed waves (Raman). Background noise. The major components of the spectrograph. Lasers and wavelengths. Filters. Multichannel detectors and CCD. Fibre-optic Raman spectroscopy. Raman microscopy and imaging. Optical devices-lenses. Performance criteria for Raman spectrographs. Tests to evaluate spectrometers.
PRACTICAL	Mastering of the practical skills in applying Raman spectrography to determine the quantity and quality of the chemical component elements of minerals, rocks and ores.
TEACHING METHODS	Lectures, discussion, problem-solving and independent observation.

RECOMMENDED READING	McCreery L. R. (2000). Raman Spectroscopy for chemical analysis. John Wiley & Son, Inc. Nakamoto K. (1997). Infrared and Raman Spectra of Inorganic and Coordination Compounds (5th ed.). John Wiley & Sons, Inc. Nyquist R. (2007). Interpreting infrared, Raman and nuclear magnetic resonance spectra. Elsevier. Strat M. (2001). Spectroscopie şi laseri. Teorie şi experiment. Ed. Univ. "Al. I. Cuza" Iaşi.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and practical work)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + written examination
	Formula of the final mark	0.5 E +0.5 D

COURSE TITLE	ISOTOPIC GEOCHRONOLOGY	CODE: GC 4104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		1		28	152	6	D, E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Maricel Răileanu, PhD	Geology

PREREQUISITES	Petrology; Mineralogy; Global tectonics

OBJECTIVES	Acquisition by the students of the most important isotope systems and equations used in geochronology.
COURSE CONTENTS	General notions about isotopic geochronology. Principles of geochronology. The K-Ar system. The Rb-Sr system. The Sm-Nd system. The Re-Os system. The Lu-Hf system. The U-Th-Pb system.
PRACTICAL	Setting out and interpreting isochrons. Setting out and interpreting Sm-Nd isochrons U-Pb dating and setting out *concordia* diagrams. Applications of geochronological methods on sedimentary, magmatic and metamorphic rocks.
TEACHING METHODS	PowerPoint presentation of lectures.

RECOMMENDED READING	Dickin, A. P. (1995). Radiogenic Isotope Geology. Cambridge University Press. Faure, G. (1986). Principles of Isotope Geology. John Wiley & Sons. Onac, P.B. (2004). Clepsidrele geologiei.Ed. Presa Univ. Clujeană, Cluj-Napoca. Văsaru, Gh., Cosma, C. (1998). Metode de datare prin fenomene nucleare naturale. Ed. Dacia, Cluj-Napoca.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (training and practical work)
	Criteria	Cumulative assessment
	Way of evaluation	Preliminary examination + final written examination
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	GEOCHEMISTRY OF STABLE ISOTOPES	CODE: GC 4105

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		1		28	152	6	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Titus Murariu, PhD	Geology

PREREQUISITES	Chemistry; Metallogeny 1,2

OBJECTIVES	The course presents the theoretical bases of isotopes, the utilisation and importance of stable isotopes (O, H, S, C, Li) in environmental research, with theoretical and practical implications based on examples from Romania and other countries
COURSE CONTENTS	1. Theoretical bases of isotopes 2. Fractionation of isotopes 3. Stable isotopes. Abundance 4. Stable isotopes in the environment. International standards. Examples from Romania and other countries The isotopes of oxygen The isotopes of hydrogen The isotopes of sulphur The isotopes of lithium 5. Isotopes in spectrometry
PRACTICAL	1. Methods of separating isotopes 2. Applications of stable isotopes in environmental research Isotopic composition of fluids: sea water, meteoric water, magmatic and juvenile water, metamorphic water, connate water and reservoir salts 3. Applications of stable isotopes in geothermometry
TEACHING METHODS	Lectures, discussion, problem-solving and independent observation

RECOMMENDED READING	Attendorn H.G., Bowen R.N. (1997). Radioactive and stable isotope geology. Chapman and Hall. Hoefs I. (1997). Stable isotope geochemistry. Springer-Verlag, Berlin. Javoi M. (1977). Stable isotope and geothermometry. J.Geol., 133. Ohmoto H. (1986). Stable isotope geochemistry of ore deposits. Review in Mineralogy, 16. Sobotovich E.V., Bartnitzki E.H., Kononenko L.V. (1982). Spravochnik po izotopnoy geokhimiy. Energoizdat, Moskva. Stable isotope geochemistry (2001). Review in Mineralogy and Geochemistry, 43. Mineral Society of America.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and practical work)
	Criteria	Cumulative evaluation
	Way of evaluation	Examination
	Formula of the final mark	0.70 E + 0.30 P

COURSE TITLE	GEOCHEMISTRY OF THE EARTH'S CRUST	CODE: GC 4201

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assoc. Professor Constantin Cocîrlă, PhD	University of Tours, France

PREREQUISITES	Mineralogy; Petrology (magmatic, metamorphic, sedimentary); Metallogeny 1,2; Geochemistry; Hydrogeochemistry

OBJECTIVES	Students will accumulate knowledge on the following: 1. The structure of the Earth's crust 2. The petrography of the Earth's crust 3. The geochemistry of the continental crust 4. The geochemistry of the oceanic crust 5. Geochemical migration in the Earth's crust
COURSE CONTENTS	The composition of the continental crust. The composition of the lower continental crust. The average composition of the continental crust. The composition of the oceanic crust. Mid-oceanic rift, oceanic island, plateau and submarine mountain basalts; geochemical characteristics. Intra-crust differentiation. Partition of minor elements in crustal conditions
PRACTICAL	Average chemical composition of the Earth's crust. Variation diagrams (Harker, Masuda). Influence of ionic rays, electrical charges, pressure and temperature on the partition of minor elements in silicates. Case studies. Geochemical zoning of metamorphic minerals. Migration of chemical elements in the upper part of the crust (decomposing, melange crusts).
TEACHING METHODS	Lectures, discussion, problem-solving

RECOMMENDED READING	Drever J. I., et al. (1988). Geochemical cycles: the continental crust and the oceans. In C. B. Gregor et all. (Eds.), Chemical cycles in the Evolution of the Earth, 17-53. Wiley, New-York, 276 p. Holland H. D. and Karl K. Turekian K. K. (Eds) (2004). Treatise on Geochemistry, vol. 3, Elsevier.

ASSESSMENT METHODS		
	Conditions	Fulfilment of student course and practical work obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Course work evaluation and final online examination
	Formula of the final mark	0.50 E + 0.50 Course work evaluation

COURSE TITLE	WEATHERING OF ROCKS	CODE: GC 4202

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Dan Stumbea, PhD	Geology

PREREQUISITES	Crystallography; Mineralogy; Petrology (igneous, metamorphic, sedimentary); Metallogeny; Geochemistry; Hydrogeochemistry; Biogeochemistry

OBJECTIVES	Knowledge of: - weathering factors - weathering processes - weathering products - analytical methods used in the study of rock weathering - experimental approaches - evolution of magmatic and metamorphic rocks under temperate climatic conditions
COURSE CONTENTS	1. Factors of weathering 2. Processes of weathering (physical weathering, chemical weathering, organic weathering) 3. Weathering Products 4. Analytical methods in rock weathering approaches 5. Experimental approaches 6. Evolution of magmatic and metamorphic rocks under temperate climatic conditions 7. Evolution of ore deposits under weathering conditions 8. Influence of weathering processes on some environmental systems (soils, sediments, waters, atmosphere)
PRACTICAL	1. Identifying the texture of mineralogical associations generated by weathering processes 2. Identifying the mineralogical associations generated by weathering processes 3. Identifying the chemical features of the mineralogical associations generated by weathering processes 3.1 Geochemical balance of major elements 3.2 Geochemical balance of minor elements 3.3 Geochemical processes at the solid/solution interface 3.4 Measuring the dissolution rate of minerals under weathering conditions 4. Experimental approaches
TEACHING METHODS	Lectures, debates, learning through discovery

RECOMMENDED READING	Bland, W., Rolls, D. (1998). Weathering. An Introduction to the scientific principles. Arnold, Londra, 272 p. Pacquet, H. (1997). Soils and sediments. Springer, Berlin, 370 p. Parker, A., Rae, J. E. (1998). Environmental interactions of clays. Springer, Berlin, 272 p. Stumbea, D. (2007). Geologia zăcămintelor de minereuri. Casa Ed. „Demiurg", Iaşi, 209 p.

ASSESSMENT METHODS		
	Conditions	Active participation to lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests
	Formula of the final mark	0.30 E + 0.70 D

COURSE TITLE	LITHOGEOCHEMICAL SURVEY	CODE: GC 4203

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assoc. Professor Emanoil Ioan Gandrabura, PhD	Geology

PREREQUISITES	Chemistry; Mineralogy; Petrology; Geochemistry

OBJECTIVES	1. To provide basic knowledge regarding the distribution of chemical elements in natural rock systems 2. To offer the theoretical and practical bases applicable in lithogeochemical research
COURSE CONTENTS	Data on the distribution of elements 1. Presentation of analytical data 2. Variation of element compositions during crystal-liquid fractional processes 3. Partition coefficients in natural and artificial systems 4. Volcanic sublimates and volcanic emanations 5. Topics on metamorphic and metasomatic processes 6. Structural control of the distribution of elements
PRACTICAL	Utilization of TR data and utilization of the amount of other trace elements for petrogenetic interpretation purposes
TEACHING METHODS	Lectures, discussion, problem-solving and independent observation

RECOMMENDED READING	Faure G. (1998). Principles and Applications of Geochemistry. 2nd ed. Prentice-Hall, Inc. New Jersey, 600 p. Krauskopf K.B., Bird D. (1995). Introduction to Geochemistry. 3rd ed. McGraw-Hill Inc., 647 p. Rollinson H.(1993). Using Geochemical Data: evaluation, presentation, interpretation. Longman Scientific & Technical, Burnt Mill, Harllow, England, 352 p.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and practical work)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + written examination
	Formula of the final mark	0.75 E + 0.25 P

COURSE TITLE	GEOCHEMICAL FIELD WORK	CODE: GC 4204

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
		4		124	174	6	C	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Gabriel Ovidiu Iancu, PhD	Geology

PREREQUISITES	Geochemistry

OBJECTIVES	Theoretical and practical Knowledge concerning: a) Representative geological sampling and b) Preparation of geological samples for the purpose of laboratory determinations by means of various methods of instrumental analysis
PRACTICAL	Geochemical sampling of rocks, minerals, soils and waters (the criterion of representativeness of samples, sample size, the management of samples). Storage of samples for various tests. Preparing samples for analysis: Grinding (minerals and rocks), tablet forming (XRF soil analysis) and concentration (liquid for XRF analysis). Sampling and processing of minerals, rocks, soils and water for the dissertation paper.
TEACHING METHODS	Lectures based on video projections, discussion, problem-solving

RECOMMENDED READING	Erhan, V., Popa, Gh. (1986). Prospecțiunea geologică. Curs litografiat. Univ. „Al I. Cuza" Iaşi, 199 p. Gill R. Ed. (1999) - Modern Analytical Geochemistry - An Introduction to Quantitative Chemical Analysis Techniques for Earth, Environmental and Materials Scientists. Longman, 344 p. Murariu, T. (1985). Geologia zăcămintelor de minereuri. Lucrări practice. Litografiat, Universitatea "Al. I. Cuza" Iaşi, 266 p. Potts, P. J. (1987) A Handbook of Silicate Rock Analysis. New York, NY: Blackie, Chapman and Hall, 622 p. Treiber, I. (1967). Prelucrarea materialelor mineralogice şi petrografice. Ed. Didactică şi Pedagogică, Bucureşti, 472 p. Van Grieken R. E., Markowicz A. A. (eds) (2002) - Handbook of X-Ray Spectrometry (2nd ed.). Marcel Dekker,Inc, New York, 984 p.

ASSESSMENT METHODS	Conditions	Fulfilment of student course and practical work obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests throughout the semester and written examination
	Formula of the final mark	0.50 D + 0.50 E

COURSE TITLE	GEOCHEMISTRY OF CONTINENTAL WATERS	CODE: GC 5101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Gheorghe Popa, PhD	Geology

PREREQUISITES	Mineralogy; Petrology; Analytical Chemistry

OBJECTIVES	Knowledge of hydrogeochemical processes within the framework of continental zones Evolution of the chemistry of natural waters Hydrogeochemical balance sheets
COURSE CONTENTS	General notions: classification of waters according to genesis, chemistry, localisation The geochemistry of continental hydrogeochemical reservoirs The chemistry of precipitation The evolution of the chemistry of natural waters; sources and intensity of their contamination Hydrogeochemical processes at soil level Hydrogeochemical processes in various types of rocks Hydrogeochemical processes in river systems (including estuaries) Hydrogeochemical processes in lakes Hydrogeochemical balance sheets
PRACTICAL	Determination of the chemistry of natural waters Establishment of a hydrogeochemical balance sheet on the basis of one's own analyses Point estimation of the valorisation field of the analysed water
TEACHING METHODS	Lectures with projections (PowerPoint); As practical work, each student will receive, at the beginning of the term, a water sample which he/she shall analyse and interpret.

RECOMMENDED READING	Drever J.I. (1997). The geochemistry of natural waters. Prentice Hall, New Jersey. Fetter C.W. (1994). Applied hidrogeology Macmillan College Pub. Co., New York. Fetter C.W. (1999). Contaminant hidrogeology Prentice Hall, New Jersey. Popa Gh. (2002). Hidrogeochimie. Ed. Universității „Al.I.Cuza", Iaşi. Popescu Rodica (2000). Hidrogeochimie. Ed. Univ. din Bucureşti.

ASSESSMENT METHODS	Conditions	Complete fulfilment of laboratory work obligations
	Criteria	Precision and interpretation of laboratory analyses
	Way of evaluation	Each student will be marked for each laboratory session. These partial marks will be used to calculate an average (A) that represents an evaluation of the activity performed during practical work each term. At the end of the term, the student will sit a written examination on what has been taught in the course (mark B).
	Formula of the final mark	The final grade (FM) will be calculated as a weighted average: Practical work 50%; Examination result 50%; FM = 0.50A + 0.50B

COURSE TITLE	RADIOACTIVE METAL GEOCHEMISTRY AND BIOGEOCHEMISTRY	CODE: GC 5102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Smaranda Rădă□anu, PhD	Geology

PREREQUISITES	Metallogeny 1,2

OBJECTIVES	The course presents the geochemistry and biogeochemistry of radioactive metals with special emphasis on uranium – the most mobile chemical element in the periodic system. It will suggestively examine aspects of the mineralogy and geochemistry of uranium, and genetic types of deposits of economic value. The course highlights aspects related to the contamination of the environment with radioactive metals and techniques to remedy these. At the same time, on the basis of data from the literature related to Romania and other countries, the uranium content of magmatite will be used as a metallogenetic geochemical indicator.
COURSE CONTENTS	1. Radioactivity: natural, artificial. Radioactive series 2. Radioactive metals: actinids 3. The geochemistry of uranium General geochemical observations. Abundance. Electronic configuration. States of oxidation. The mineralogy of uranium: minerals proper; minerals with concentrations of uranium The geochemistry of uranium in endogenic and exogenic processes Genetic types of uranium deposits 4. The biogeochemistry of uranium Uranium in soils and sediments. Abundance. Sources. Transport. Stabilisation. Toxicity Uranium in waters. Abundance. Sources. Transport. Mobility. Uranium in living organisms. Abundance. Sources. Toxicity 5. Contamination of the environment with uranium and techniques to remedy this
PRACTICAL	1. Methods of identifying radioactivity 2. Methods of identifying uranium 3. Modern methods of determining uranium: mass spectrometry, X-ray fluorescence, absorption spectrometry, spectrometry in IR, thermal analysis 4. Partition coefficients: mineral – fusion 5. Uranium in magmatites as a geochemical metallogenetic indicator
TEACHING METHODS	Lectures, discussion, problem-solving and independent observation

RECOMMENDED READING	Bourdon B., Henderson G.M., Lundstrom C.C., Turner S.P. (2003). Uranium series Geochemistry. Reviews in Mineralogy, 52. Burns P.C., Finch R. (1999). Uranium: Mineralogy, Geochemistry and the Environment. Reviews in Mineralogy, 38. Dahlkamp F.J. (1993). Uranium ore deposits. Springer-Verlag, Berlin. Murariu T. (2005). Geochimia şi metalogenia uraniului. Ed.Univ. "Al.I.Cuza", Iaşi.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (lectures and practical work)
	Criteria	Cumulative evaluation
	Way of evaluation	Examination
	Formula of the final mark	0.70 E + 0.30 P

COURSE TITLE	SOIL GEOCHEMISTRY AND POLLUTION	CODE: GC 5103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	E	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Victor Şabliovschi, PhD	Geology

PREREQUISITES	Mineralogy; Magmatic and metamorphic petrology; Sedimentary petrology; Metallogeny; Gemmology; Terrestrial and extraterrestrial volcanism; Geochemistry; Pedogeochemistry; Special problems of geochemistry; Organic geochemistry; Special problems of environmental geochemistry; Geochemistry of fuel minerals

OBJECTIVES	1. Geochemistry of C, N, P, S in soils; 2. Carbon budget in European forests; 3. Yasso and Silva models; 4. Soil geochemistry; 5. Soil, component of the natural environment; 6. Compounds and phases. Organic and inorganic compounds; 7. Geochemistry of soil solutions; 8. Sorption geochemical processes in soils (cations and anions); 9 Alkalinity, acidity; 10. Soil pollution. Nature and source of the pollutants; 11. Heavy metal pollution (Pb, Zn, Cu, Cd, Tl, Hg, Ni, Cr, As, B, Co, Mo, Mn, Ti, Fe); 12. Selenium and sulphur pollution. Fluor pollution; 13. Iodine and bromide in soils; 14. Depolluting methods applied on soils. Polluting of Romanian soils with heavy metals.
COURSE CONTENTS	I. Geochemistry of C, N, P, S in European soils; II. Carbon budget in European forests; III. Carbon and Yasso's model for the decomposition of forest soils, litter, soil organic matter, decomposition of non - woody litter, lose a certain proportion of their mass per unit of time, microbial activity; IV. Soil geochemistry; V. Humic substances. IHHS. Standards for humic and fulvic acids. Elemental composition. Humines; VI. Mineral components; silicates, clay minerals, zeolites, oxides Fe, Al, Mn, Ti; VII. Geochemistry of soil solution from Romanian forest (spruce and beech); VIII. Geochemistry of P, S, N, C and heavy metals in agricultural soils, manures; IX. Alkalinity and acidity in agricultural and forest soils. Amendments for acidic and alkaline soils; X. Soil pollution. Nature and source of the pollutants; XI. Polluting of Romanian soils with heavy metals - hot spots (Zlatna, Rosia Montana, Copsa Mica, Baia Mare, Galati, Resita); XII. Selenium and fluorine pollution of agricultural and forest soils; XIII. Geochemistry of forest soil solution (Poland, Austria, Bulgaria, Hungary, Germany, France); XIV. Depolluting methods on soils and groundwaters: RAAS.
PRACTICAL	I. Geochemistry of carbon in soils. The carbon cycle of forests; II. Soil geochemistry; III. Domestic and industrial waste; IV. Organic substance pollution; V. Liming of acidic soils; VI. Amendments for alkaline soils; VII. Pollution with inorganic substances; VIII. Geochemistry of agricultural soils; IX. Geochemistry of forest soil and soil solution; X. Geochemistry of organic matter in European forest soils (spruce and beech); XI. Soil pollution with hydrocarbon and saline water; XII. Pollution with heavy metals; XII. Pesticides; XIII. Natural manure. Composts.
TEACHING METHODS	Interactive presentation, debates. Video and overhead projector.

RECOMMENDED READING	Liski J., Palosuo T., Peltoniemi M., Sievänen R., (2005). Carbon and decomposition model Yasso for forest soils. Ecological Modelling 189, 168 – 182. Neag G., Culic A., Verraes G., (2001). Soluri şi ape subterane poluate. Tehnici de depoluare. Ed. Dacia, Cluj-Napoca. 226 p. Powlson D.S., Smith P., Smith J. U., (1996). Evaluation of Soil Organic Matter Models. Springer, Berlin, 429 p.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (training and practical work)
	Criteria	Cumulative assessment
	Way of evaluation	Preliminary examination + final written examination
	Formula of the final mark	P1-2 (0.40) + E (0.40) + P (0.10)

COURSE TITLE	GEOMICROBIOLOGY	CODE: GC 5104

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		1		28	152	6	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Traian Gavriloaiei, PhD	Geology

PREREQUISITES	Analytical chemistry 1, 2; Mineralogy

OBJECTIVES	1. To develop assimilation and analysis abilities for interface processes in students 2. To study the chemical fundamentals of mineral-microorganism interactions. 3. To learn the qualitative and quantitative study of the adsorption phenomenon onto the wall cellular surface of microorganisms.
COURSE CONTENTS	1. Introduction. Earth and microorganisms. 2. Lithosphere and microbian habitat (rocks and minerals, soil minerals, organic soil). The role of microorganisms in the inorganic transformation from the lithosphere. Geomicrobian agents, catalyses of geological and geochemical processes. Geomicrobian agents in organic matter mineralization. Microbian formation of mineral carbonates. 3. Geomicrobiology of silicates, phosphates, metallic sulphides and coal weathering products. 4. Geomicrobiology of heavy metals. 5. Chemical processes of biosolubilization. Oxidation of metallic sulphides. 6. Chemical processes of bioaccumulation (extracellular, surface and intracellular bioaccumulation).
PRACTICAL	1. The stage of knowledge in geomicrobiological research. 2. Geomicrobian cycles. 3. Geomicrobiology of mineral oxidation. 4. The study of bioaccumulation chemical processes.
TEACHING METHODS	Lectures, discussions, problematisation, learning through discovery, presentation of slides

RECOMMENDED READING	Banfield J., Nealson K.H. (eds.) (1997). Rewiews in Mineralogy, vol. 35, Geomicrobiology, Interactions between microbes and minerals, Min. Soc. of America, Washington, p. 35-71, p. 361-382. Ehrlich H. L. (1995). Geomicrobiology, Marcel Dekker Inc., New York. Hong Kong. Ehrlich H.L., Brierley C.L. (1990). Microbial mineral recovery, McGraw-Hill Publishing Co., New York, p. 3-27. Gavriloaiei T. (2001). Biotehnologii minerale cu aplicatii in investigatii geochimice, Ed. Corson, Iasi.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional duties (lectures, practical works or seminars)
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.75 E + 0.25 D

COURSE TITLE	ATMOSPHERE GEOCHEMISTRY AND POLLUTION	CODE: GC 5105

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	OP

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		1		28	152	6	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Traian Gavriloaiei, PhD	Geology

PREREQUISITES	Atmospheric Geochemistry; Environmental Geochemistry

OBJECTIVES	- to develop the assimilation, transfer and investigation abilities for atmospheric data analyses; - to understand the complexity of the chemical phenomena that take place in the atmosphere; - to establish and to use the most adequate methods in the quantitative analysis; to identify the main rules which govern the fundamentals of the chemical processes from the atmosphere.
COURSE CONTENTS	1. Inorganic pollutants in the atmosphere. Introduction. Atmospheric particles. Physico-chemical composition of atmospheric particles. Emission and effects of atmospheric particles. Atmogeochemical cycle of carbon, sulphur and nitrogen oxides. 2. Atmospheric pollution with metals (factors, speciation, transport and sedimentation, rare metals). 3. Wet and dry deposition in the atmosphere. Acid rain. 4. Organic pollutants in the atmosphere (natural and atrophic sources, pollutants from oil, coal industry and biomass). Producing and effects of atmospheric smog. 5. Tropospheric models for prediction of atmospheric pollution.
PRACTICAL	1. Statistical interpretation of atmospheric data. 2. Analytical methods for gases. 3. Analytical methods for particulate materials from the atmosphere.
TEACHING METHODS	Lectures, discussions, problematisation, learning through discovery

RECOMMENDED READING	Brasseur G. P., Prinn R. G., Pszenny A. P. (eds.) (2003). Atmospheric Chemistry in a Changing World, Springer Verlag Berlin. Meszaros E. (1999). Fundamentals of Atmospheric Aerosols Chemistry, Akademiai Kiado, Budapesta. Zellner R. (ed.) (1999). Global Aspects of Atmospheric Chemistry, Springer Verlag, Berlin. Wayne R. (2000). Chemistry of Atmospheres, 3rd ed., Oxford.

ASSESSMENT METHODS	Conditions	Fulfilment of professional duties (lectures, practical works or seminars)
	Criteria	Cumulative evaluation
	Way of evaluation	Evaluation during the semester (VP) + examination (Ex)
	Formula of the final mark	0.75 E + 0.25 D

COURSE TITLE	GEOCHEMISTRY AND DYNAMICS OF INORGANIC POLLUTANTS	CODE: GC 5201

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	192	8	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Dumitru Bulgariu, PhD	Geology

PREREQUISITES	Inorganic geochemistry; Geochemical modelling with applications on environment-related issues. Geochemistry of continental waters; Physical geochemistry

OBJECTIVES	Assimilation and understanding of basic concepts in an applicative context. Development of the application of concepts in specific cases – case studies, estimating the dynamics of inorganic pollutants and the environmental impact. Developing skills in working with specialized laboratory equipment.
COURSE CONTENTS	I. Inorganic Pollutants (Classifications. Sources of pollution. Toxicity and limit of permitted concentration. Mechanisms of interaction and environmental impact). II. Mechanisms of transport of inorganic pollutants (transport by diffusion and migration; reagent transport; in situ generation of pollutant species.). III. Dynamics of global inorganic pollutants (complex kinetic processes; speciation processes; actual distribution coefficients; mobility and real coefficients of retention in the environment; inactivation of migration and mitigate inorganic pollutants). IV. Geochemistry and dynamics of inorganic pollutants in the atmosphere (pollution sources and pollutant types; specific mechanisms of transmission and distribution; specific mechanisms of interaction and impacts). V. Geochemistry and inorganic pollutants in hydrological dynamic systems (pollution sources and pollutant types; specific mechanisms of transmission and distribution; speciation processes in continental and marine hydrographic systems; specific mechanisms of interaction and impacts). VI. Geochemistry and dynamics of inorganic pollutants in multiphase-multicomponent heterogeneous systems (pollution sources and pollutant types; specific mechanisms of transmission and distribution; speciation processes in multiphase-multicomponent systems; distribution processes at the solid/liquid interface; mobility and retention coefficients of pollutants in solid-liquid-gas heterogeneous systems; specific mechanisms of interaction and impact).
PRACTICAL	I. River pollution by heavy metals: estimated distribution, effective mobility and retention coefficients (application: Hg, Cd, Cr, Pb, Se, Tl), cyanides, nitrites and ammonia. II. Lake pollution by heavy metals: estimated distribution, effective mobility and retention coefficients (application: Hg, Cd, Cr, Pb, Se, Tl), cyanides, nitrites and ammonia. III. Pollution of marine systems by heavy metals: estimated distribution, mobility and effective retention coefficients (application: Hg, Cd, Cr, Pb, Se, Tl). IV. Soil pollution by heavy metals: estimated distribution, effective mobility and retention coefficients (application: Hg, Cd, Cr, Pb, Se, Tl), cyanides, nitrites and ammonia. V. Study of the influence of speciation processes on the dynamics of heavy metals (Cd, Cr, Pb) in hydrologic systems and soils. VI. The study of the influence of distribution processes at the mineral/solution interface on heavy metals dynamics in soils.
TEACHING METHODS	Reproductive-explanatory (exposition). Conducted training. Learning through discovery. Experimental - investigative (problematisation, discussion, case studies)

RECOMMENDED READING	Kabata-Pendias A., Pendias H. (1992). Trace Elements in Soils and Plants. CRC Press. Inc., Boca raton, FL. Negoiu D., Kriza A. (1977). Poluanți anorganici în aer. Ed. Acad. RSR, Bucureşti. Salomons W., Föstner U., Mader P. (eds.) (1995). Heavy Metals. Problems and Solutions. Springer, Berlin. Weber A.J. Jr., DiGiano F.A. (1996). Process Dynamics in Environmental Systems. Wiley & Sons, Inc., N.Y. Weber A.J. Jr. (2001). Environmental System and Processes. Principles, Modeling, and Design. Wiley, N.Y.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional obligations (course + practical work)
	Criteria	Cumulative assessment
	Way of evaluation	Testing Practice Exam + Project + Exam
	Formula of the final mark	0.40 Exam+ 0.40 Project + 0.20 Project Work Practice

COURSE TITLE	WATER TREATMENT AND PURIFICATION	CODE: GC 5202

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		2		36	174	7	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Teaching Assistant Dan Ștefanei	Geology

PREREQUISITES	General Chemistry; Analytical Chemistry; Hydrogeochemistry

OBJECTIVES	This course is aimed at familiarising students with the main procedures for treatment and purification of water and will help them to apply notions acquired in concrete cases – natural water sources, water analysis, characteristics of water intended for human consumption, characteristics of used water, familiarisation with water treatment and purification installations
COURSE CONTENTS	A. General notions about water: - Physical and chemical characteristics of natural waters - Specifics of the quality of various sources of natural water B. Quality requirements for water for human consumption: - Drinking water - Indicators and chemical properties C. Water treatment procedures: - Current water treatment techniques - Special water treatment techniques - Make-up of water treatment stations – technological diagrams D. Procedures for the treatment of used water: - Used water and its influence on the natural environment - Self-purification - Purification of used water E. Treatment of sludge: - Physical and chemical characteristics of sludge - Procedures for the processing of sludge - Valorisation and final evacuation
PRACTICAL	1. Analytic and spectrophotometric methods for the analysis of water – description; 2. Determination of chemical consumption of oxygen (CCO); 3. Determination of biochemical consumption of oxygen (CBO5); 4. Determination of temporary hardness; 5. Determination of permanent hardness; 6. Determination of total hardness; 7. Determination of calcium and magnesium
TEACHING METHODS	Exposition, presentation, experimentation

RECOMMENDED READING	Negulescu M., (1982). Protecția calității apelor. Ed. Tehnica, Bucharest. Rojanschi V., Ognean T. (1989). Cartea operatorului din stații de tratare si epurare a apelor. Ed. Tehnica, Bucharest. Stoianovici S., Robescu D. (1982). Procedee si echipamente mecanice pentru tratarea si epurarea apelor. Ed. Tehnica, Bucharest. Trofin P. (1983). Alimentari cu apa. Ed. Didactica si Pedagogica, Bucharest.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations (course + practical work)
	Criteria	Cumulative evaluation
	Way of evaluation	Practical test + examination
	Formula of the final mark	0.50 D + 0.30 E + 0.20 P

COURSE TITLE	APPLIED GEOSTATISTICS FOR GEOCHEMICAL MODELLING	CODE: GC 5203

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	192	8	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Laviniu Apostoae, PhD	Geology

PREREQUISITES	Geostatistics; Soil Geochemistry and Pollution; Weathering of Rocks; Lithogeochemical Survey

OBJECTIVES	The course will introduce a series of geostatistical methods for the spatial analysis of geochemical data. Students will learn how to apply geostatistics for the description of spatial patterns and identification of scales of variability, spatial interpolation and stochastic modelling of environmental attributes, creation of risk maps and their use in decision-making.
COURSE CONTENTS	Introduction. Exploratory spatial data analysis. Description of spatial patterns. Modelling the spatial variability. Spatial prediction. Accounting for secondary information in kriging. Risk mapping and incorporation in decision-making. Stochastic simulation.
PRACTICAL	Based on geochemical data (heavy metals in the soils of the municipality of Iasi and surrounding areas), the students will be able to: 1. import, visualize and analyze the data in a space-time information system; 2. conduct a complete geostatistical analysis using the software; 3. detect spatial outliers in the data; 4. analyze and model the spatial variability of the data; 5. map sparsely sampled environmental attributes and characterizes the reliability of those maps; 6. choose the interpolation technique that makes best use of the information available; 7. create risk maps, and use them in decision-making; 8. gain a basic understanding of state-of-the-art geostatistical methods for stochastic simulation and space-time interpolation; 9. explore and visualize local relationships between environmental variables.
TEACHING METHODS	Lecture; discussion

RECOMMENDED READING	Chauvet, P. (2008). Aide-Mémoire de Géostatistique Linéaire. Presses de l'Ecole des Mines. Goovaerts, P. (1997). Geostatistics for Natural Resources Evaluation. Oxford University Press. Webster, R., Olivier, M. (2007). Geostatistics for Environmental Scientists. 2nd Edition. Wiley.

ASSESSMENT METHODS	Conditions	Complete fulfilment of laboratory duties
	Criteria	The correctness of results obtained in taking over and interpreting field data
	Way of evaluation	The evaluation of students' knowledge is done both during the semester (continuous evaluation) and at the end of the module (written examination).
	Formula of the final mark	0,30 laboratory activity + 0,35 continuous evaluation + 0,35 examination

COURSE TITLE	GEOCHEMICAL HAZARDS	CODE: GC 5204

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
1		2		36	174	7	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Gabriel Ovidiu Iancu, PhD	Geology

PREREQUISITES	Geochemistry

OBJECTIVES	Knowledge of the main geochemical hazards and risks and measures to prevent or reduce their damaging effects
COURSE CONTENTS	Pollution caused by non-metals (F, As), heavy metals (Cd, Pb, Hg, Zn, etc.) and radioactive metals (U, Th, Ra); Artificial replenishment of aquifers, Deep-level injection of waste; Sterile dumps; Acid rain; Urban waste, Pesticides
PRACTICAL	Detailed presentation of geochemical hazards occurring in Romania or globally: heavy-metal pollution in urban areas, cyanide pollution in mining areas etc.; Testing and analysis of areas subjected to geochemical risks (practical case – Jassy Municipality)
TEACHING METHODS	Lectures based on video projections, discussion, problem-solving

RECOMMENDED READING	Förstner U. (1998). Integrated pollution control, Springer Verlag, 505 p.; Pirone N., Mahaffey K. R. (2005). Dynamics of mercurry pollution on regional and global scales, Springer Verlag, 744 p.; Popek E. P. (2003). Sampling and analysis of environmental chemical pollutants. A complete guide, Academic Press, 366 p.; Reeve R. N. (2002). Introduction to environmental analysis, John Wiley & Sons, LTD; Vallero D. A. (2004). Environmental Contaminants: Assesment and Control, Elsevier Academic Press, 801 p.; Zhu C., Anderson G. (2002). Environmental applications of geochemical modelling, Cambridge University Press, 284 p.

ASSESSMENT METHODS	Conditions	Fulfilment of student course and practical work obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Written tests throughout the semester and written examination
	Formula of the final mark	0.50 D + 0.50 E

THE FIELD OF GEOLOGICAL ENGINEERING

Master: *WELLING AND ENVIRONMENTAL GEOLOGY*

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COURSE TITLE	BIOSTRATIGRAPHY AND PALEOECOLOGY	CODE: IG 5101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	40	106	194	10	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Paul Țibuleac, PhD	Geology

PREREQUISITES	Palaeontology; Stratigraphy

OBJECTIVES	Debating the procedures of order and correlation of the body of strata from different basins and/or structural-tectonic circumstances on the fossil content. Emphasizing the importance of fossil records in paleogeographical reconstructions and the outlining of paleobioprovinces. Using the paleoecological significance of fossils in paleoenviroment studies.
COURSE CONTENTS	Evolution versus creation. Biodiversity and extinction in the history of life. Speciation. *Lazarus* taxa. Index fossils. Biostratigraphic units (International Stratigraphic Guide, 1994). Procedures regarding the establishment of the biostratigraphic units. Correlation on the small areas. Paleobiogeographical provinces. Centers of the origins (centers of dispersion) of particular flora and fauna taxa. Elements of dispersion and migration. Filterable bridges. Global tectonic and the paleogeographical evolution. Paleogeographical (physical and climatic) barriers. Biostratigraphic correlation on the Globe. Examples. Marine and continental paleoecology: definition, principles and objectives. Facies fossils. Synecology and Ecostratigraphy. Example: reef paleoenvironment. Marine paleoecology: vertical zoning of the pelagic domain; limit of the carbonate compensation; zoning of the benthic domain; factors of the development and dispersion of life (substratum, depth, temperature, salinity, oxygen content, nutrients, currents etc.); paleoclimatic reconstructions on the basis of stable isotopes (O, Sr) from the foraminifer tests (plankton and benthon). Taphocoenoesis (dead, transport and mechanical selection, prediagenetic dissolution, burying by sediments, diagenetic modifications). Elements of biostratonomy. Influences of the paleoenvironments on the organisms and their decrypting in the hard parts. Lagerstätten settings. Population and paleoenvironments. Ichnofossils. Continental paleoecology (alluvial, fluvial, lacustrine, paludal and desert environments). Factors of migration. Importance of the paleoflora in paleoclimatic reconstructions.
PRACTICAL	Exercises for the establishment of biozones and biostratigraphic correlations (real and hipotethical data). Decrypting the environment of strata deposition using the frequency of specimens (which proceed from different life environments). Sedimentological significances of paleofauna (eustatism, strata superpositions) using the biostratonomical aspects, report of planctonic and benthonic specimens etc. Reconstruction of a reef environment using the borehole data. Paleoclimatic reconstrutions of the paleoflora significance. Importance of ichnofossils in paleoenvironment reconstructions.
TEACHING METHODS	Lectures, lecture-debates, applications on complementary material. Specific field studies; following the patterns of the paleontological papers. Using questions and answers when dealing with controversial issues.

RECOMMENDED READING	Böhm F., Ebli O., Krystyn L., Lobitzer H., Rakús M, Siblík M. (1999). Fauna, Stratigraphy and Depositional Environment of the Hettangian-Sinemurian (Early Jurassic) of Adnet (Salzburg, Austria). Abhandlungen der geologischen Bandessanstalt, 56/2, p. 143-271, 30 pl., Wien. Dommergues J.-L., Meister C. (1991). Area mixed marine faunas between two major paleogeographical realms, exemplified by the Early Jurassic (late Sinemurian and Pliensbachian) ammonites in the Alps. Palaeogeography, Palaeoclimatology, Palaeoecology, vol. 86, p. 252-282, Elsevier Science Publishers B. V., Amsterdam. Rado Gertruda (1974). Paleoecologie. 414 p., Centrul de multiplicare al Universității Bucureşti. Rey P., Burg J.-P., Casez M (1997). The Scandinavian Caledonides and their relationships to the Variscan Belt (in Orogeny through time – edited bz Burg J.-P., Ford M.), p. 179-201, The Geological Society, London. Salvador A., ed. - .International Stratigraphic Guide – ediția 1994. Țibuleac P., (2006). Paleontologie. Volumul I, 348 p., Editura Tehnopress, Iaşi.

ASSESSMENT METHODS	Conditions	Passing the practical test at the end of the semester. Writing of an essay on course topics.
	Criteria	Ability to notice, to interpret and to correlate the information of the fossil records from the same paleoprovince or from different paleoprovinces. Ability to understand the fossil significance in the geological ensemble; ability to outline the paleoenvironment using the paleofauna data.
	Way of evaluation	Written and oral examination. Debating the essay.
	Formula of the final mark	0.3 mark received on the practical test + 0.2 mark of the essay + 0.5 mark received for the exams.

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COURSE TITLE	SPECIAL TOPICS IN PETROLOGY	CODE: IG 5102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	244	10	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Petru tefan, PhD	Geology

PREREQUISITES	Required: Sedimentary Petrology; Mineralogy; Rock Mechanics Recommended: Stratigraphy; Petroleum Geology

OBJECTIVES	Applied petrology is a geological topic that studies carbonate and siliciclastic sedimentary rocks. The main objectives are: - fundamental and applied aspects associated to carbonate and siliciclastic rocks, with a close look on the formation and the spreading conditions, as well as on deposit conditions and the utility of these rocks. - the associations that exists between the petrology of carbonate and siliciclastic rocks and the field of petroleum deposits, at both source and hosting rock level.
COURSE CONTENTS	Petrogenetic processes that generate carbonate and siliciclastic rocks Petrogenetic processes of accumulation Diagenesis processes that transform the sediments into rocks Texture and structure aspects of carbonate and siliciclastic rocks The participation of siliciclastic and carbonate rocks to the formation of biostatigraphic units Geotechnic features of siliciclastic rocks Geotechnic features of carbonate rocks Systematic and distinct features for some siliciclastic and carbonate rocks
PRACTICAL	Identifying the petrographic constituents of siliciclastic and carbonate rocks Determination of some geotechnic features: density, porosity, texture and structure 1. Processing and collecting of samples on the sieve 2. Lithological description of samples on the sieve 3. Evaluation of carbonate content 4. Density determination of pelitic rocks 5. Mineralogy and petrography of siliciclastic and carbonate rocks 6. Texture and structure of siliciclastic and carbonate rocks
TEACHING METHODS	Exposition and microscopic observation

RECOMMENDED READING	
	Anastasiu N. (1988). Petrologie sedimentară. Ed. Tehnică, Bucureşti. Pârvu G., Vinogradov C., Pauliuc S., Preda I. (1977). Petrologia aplicată a rocilor carbonatate sedimentare. Ed. Acad. Bucureşti. Rădulescu D., Anastasiu N. (1979). Petrologia rocilor sedimentare. Ed. Didactică şi Pedagogică, Bucureşti. Vinogradov C., Pârvu G., Bomboe P., Negoiță V. (1983). Petrografia aplicată a rocilor detritice. Ed. academiei Române, Bucureşti. S.C. „DAFLOG" S.R.L. Mediaş – Îndrumător Mudlogging – 2005

ASSESSMENT METHODS		
	Conditions	Attendance to laboratories
	Criteria	Project
	Way of evaluation	Report on the data obtained in the laboratory, Examination paper
	Formula of the final mark	40% project + 60 % examination paper

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COURSE TITLE	DRILLING MUD FLUIDS AND ENVIRONMENTAL IMPACT	CODE: IG 5204

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	M (D + E)	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Corneliu Horaicu, PhD	Geology

PREREQUISITES	Geoinformatics; Geostatistics; Geology Field Work; Instrumental Methods in Geoscinces; Structural Geology and Geological Cartography; Hydrogeochemistry; Hydrogeology; Well Drilling Technology; Stratigraphy and Sedimentology; Economic Geology; Geological and Environmental Engineering; Welling Geophysics; Environmental Geochemistry; Atmospheric Geochemistry.

OBJECTIVES	The teaching of “Drilling fluids and environmental impact” is fundamentally necessary for “Oil well geology”. The effects with a negative impact upon the environment and their modalities and means of remedy, the technical impact, the anthropical technological impact and the monitoring, analysis, prognosis and environmental reconstruction solutions are a fundamental necessity of present development. The objectives of the course can be synthesised as follows: direct knowledge of environment conservation and protection issues; obtaining data by using systematic measurements in order to perform monitorship activities; setting of an environmental management.
COURSE CONTENTS	- structure of environmental management; environmental aspects; legal resolutions (environmental laws, decisions, settlements etc.) and technical standards. - efficiency of administration in environmental issues; legal and technical harmonization of real environmental data (integrated environmental monitoring). - accomplishment of European aquis.
PRACTICAL	Case study projects will be drawn up and will establish the necessary measures for the improvement of environmental factors.
TEACHING METHODS	Assimilation methods (lectures, demonstrations, conversations); Checking methods (periodic and cumulative verifications); Evolution methods (written, oral and practical examinations).

RECOMMENDED READING	Bezou E. (1998). Système de management environnemental. Audit certification et réglement eco-audit. AFNOR, Paris; Deming W.E. (1982). Quality productivity and Competitive Position Mass. M.I.T. Center for Advanced Engineering Study, Cambridge; Duțu M. (1998). Dreptul mediului. Editura Economică, Bucureşti; Horaicu C. (1986). Foraj şi lucrări miniere - îndrumător pentru lucrările practice. Editura Universității "Al. I. Cuza" Iaşi; Horaicu C. (2004). Monitorizarea integrată a mediului. Editura Tipo Moldavă, Iaşi; Horaicu C., Gabrian C. F., Robu B. (2007). Managementul riscului de mediu în industria extractivă, Editura TipoMoldova, Iaşi; Ionescu C. (2000). Cum să construim şi să implementăm un sistem de management de mediu în conformitate cu ISO 14.100. Editura Economică, Bucureşti; Jelev I. (1999). Managementul mediului înconjurător. Editura Universității Oradea; Macoveanu M. (2003). Auditul de mediu, Editura Ecozone, Iaşi; Negulescu M. et al. (1995). Protecția mediului înconjurător. Editura Tehnică, Bucureşti; Olaru M. (1999). Managementul calității. Editura Economică, Bucureşti; Rânță C., Cristea S. (1982). Prevenirea şi combaterea poluării. Editura Ceres, Bucureşti; Rogers W.F. (1969). Compoziția şi proprietățile fluidelor de foraj (traducere din limba engleză). Editura Tehnică, Bucureşti; Rojanschi V., Bran F., Diaconu G. (1997). Protecția şi ingineria mediului. Editura Economică, Bucureşti; Rojanschi V. (1995). Evaluări de impact şi strategii de protecție a mediului. Universitatea Ecologică; Stanners D., Boudeau F. (1995). Europe's environment (The Dobris Assesment). EEA, Copenhagen; xxx - Legi, Hotărâri de Guvern, Ordine ale Ministrului, Norme de aplicare şi Standarde privind protecția mediului; xxx - Regulamente şi Directive ale Parlamentului şi ale Consiliului Europei

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations: lectures and practical work
	Criteria	Cumulative assessment.
	Way of evaluation	Practical test + Written examination
	Formula of the final mark	Environmental micro-project x 0.5 + Mark received for the examination x 0.5

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COURSE TITLE	SEQUENCE STRATIGRAPHY	CODE: IG 5205

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Crina Miclău, PhD	Geology

PREREQUISITES	Sedimentology and Stratigraphy

OBJECTIVES	The aim is to provide students with a working knowledge of the theoretical framework of sequence stratigraphy and with practical experience of the analysis techniques of sedimentary succession using this approach. Students will learn how to use evidence for changes in base level within a succession as a tool for stratal correlation and for predicting facies distributions in time and space.
COURSE CONTENTS	The course provides a clear understanding of the principles of sequence stratigraphy, the workflow of sequence stratigraphic analysis, and an overview on the different sequence models in use. Topics: Methods and workflow of sequence stratigraphic analysis; fundamental concepts of sequence stratigraphy; sequence stratigraphic surfaces; systems tracts; sequence models; time attributes of stratigraphic surfaces; hierarchy of sequences and sequence boundaries; applications to siliciclastic depositional systems (alluvial, fluvial, deltaic, coastal non-deltaic, shelf, abyssal DS)
PRACTICAL	It will focus on the recognition of trends in facies which reflect changes in base level (fall and rise) which in turn control the behaviour of shoreline (transgression, regression) and the evidence for key stratal surfaces which may be used in correlation. Different exercises on outcrop data or well logs have to be solved. If possible, a field work will be organized.
TEACHING METHODS	Interactive lectures and PowerPoint presentations of graphic material and photos.

RECOMMENDED READING	Cătuneanu O. (2006). Principles of Sequence Stratigraphy, Elsevier Science, 375 p. Emery D., Myers K. (editors) (1997). Sequence stratigraphy, Blackwell Science, Oxford, 257p. Van Wagoner, J.C., Mitchum, R.M., Campion, K.M., and Rahmanian, V.D. (1990). Siliciclastic Sequence Stratigraphy in Well Logs, Cores, and Outcrops: Concepts for high resolution Correlation of Time and Facies, AAPG Methods in Exploration series, No. 7, American Association of Petroleum Geologists, Tulsa, 63 p. Wilgus C. K. C.K. Wilgus, B.S. Hastings, H. Posamentier, J. Van Wagoner, C.A. Ross, and C.G. St. C. Kendall (editors) (1988). Sea-Level Changes: An Integrated Approach, SEPM Special Publication, No. 42, Tulsa, 407 p.

ASSESSMENT METHODS	Conditions	All the laboratory classes are compulsory, as well as the field trip (if organized). I strongly recommend you to actively attend lectures and to read the topic of the day before the class in order to discuss it.
	Criteria	An active participation to in-class discussions during the practical classes and the completion of all requested exercises are minimal conditions which must be met. The number and quality of questions you will ask during the practical classes and lectures will be considered a measure of your interest in this course.
	Way of evaluation	Colloquium, exercise presentation and final examination (written)
	Formula of the final mark	0.6 P+0.4 E

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COURSE TITLE	GEOTHERMAL EVOLUTION OF ORGANIC MATTER	CODE: IG 5206

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M1	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	184	8	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Daniel Țabără, PhD	Geology

PREREQUISITES	Petroleum geology; Coal deposit geology; Palynology

OBJECTIVES	Aspects concerning the processes involved in the transformation of organic matter into coal, oil or natural gas.
COURSE CONTENTS	Organic compounds of the biosphere. Organic matter systematization. Importance of palynofacies. Thermic diagenesis of the organic matter. Transformation of the organic matter into coal and the hydrocarbon genesis.
PRACTICAL	Methods of transmission microscopy used in the analysis of vegetal organic matter. Optical method used for the determination of types of palynofacies. Optical analysis of figurate and amorphous organic matter: use of Shvetsov's scale; Thermal Alteration Index (TAI scale); appearance of the organic matter in fluorescent light.
TEACHING METHODS	Lectures, debates, learning through discovery

RECOMMENDED READING	Alpern B. (1980). Petrographie du Kérogèn. In: Durand, B (éd): Kérogène, Techn. Paris. Batten D. J. (1982). Palynofacies, paleoenvironments and petroleum. J. micropal. 1. Combaz A (1964). Les Palynofaciès. Rev. Micropal., 7, 3, Paris. Gorin G. (1987). La matière organique dans les roches sédimentaires et genese des hydrocarbures (petrole et gaz). Cahiers de la Fac. de Sci., 15, Univ. Genéve. Robert P. (1979). Classification des matière organiques en fluorescence application aux roches-mères pétrolières. Bull. Centr. Rech. Explor + prod. ELF-Aquit. Mem. 8. 375 p., Pau. Robert P. (1985). Histoire géotermique et diagenèse organique. Bull. Centr. Rech. Explor + prod. ELF-Aquit, Mem. 8, 375 p., Pau. Tyson R. V. (1995). Sedimentary Organic Matter: Organic Facies and Palynofacies. 615 S.; London (Chapman & Hall).

ASSESSMENT METHODS	Conditions	Active attendance of lectures and practical work
	Criteria	Cumulative evaluation
	Way of evaluation	Examination
	Formula of the final mark	0.50 E + 0.50 P

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COURSE TITLE	APPLIED MICROPALEONTOLOGY	CODE: IG 6101

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	244	10	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Viorel Ionesi	Geology

PREREQUISITES	Micropaleontology

OBJECTIVES	The main objective of this course is the assimilation by the students of required knowledge for the study of microfossils found out in the borehole samples.
COURSE CONTENTS	1. General considerations regarding the importance of the study of microfossils in the fields of oil-exploration, biostratigraphy and paleoecology. 2. Calcareous nannoplankton (its application in stratigraphy and paleoecology). 3. Foraminifera (its application in stratigraphy; environmental variables affecting benthic foraminifera and their bathymetric distribution, modern habitats of benthic foraminifera; the environmental variables affecting planktonic foraminifera and their distribution in modern ocean water). 4. Radiolaria, Ostracoda, Conodonta, Otoliths, Mysid statoliths: stratigraphical distribution, paleoecology, evolution and application.
PRACTICAL	Borehole sampling and sample preparation techniques. Identification, by means of the optical microscope, of some microfossil species used to date and to correlate sedimentary formation.
TEACHING METHODS	Oral presentation, debates. Individual laboratory work with each student on the optical microscope.

RECOMMENDED READING	Bucur I. I., Filipescu S. (1999). Micropaleontologia foraminiferelor. Ed. Presa Universitară Clujeană, Cluj-Napoca. Ionesi Bica (1982). Curs de Micropaleontologie. Univ. "Al. I. Cuza", Iaşi. Iorgulescu T. (1952). Elemente de Micropaleontologie aplicată, Editura Tehnică, Bucureşti. Loeblich A. R., Tappan H. (1988). Foraminiferal genera and their classification. Van Nostrand Reinoldh Companz, New York. Neagu Th. (1979). Micropaleontologie. Protozoare. Ed. Tehnică, Bucureşti. Neagu Th. (1989). Micropaleontologie. Metazoare. Ed. Tehnică, Bucureşti. Şuraru N. (1983). Curs de Micropaleontologie. Univ. "Babeş - Bolyai", Cluj-Napoca.

ASSESSMENT METHODS	Conditions	Fulfilment of professional obligations
	Criteria	Cumulative evaluation
	Way of evaluation	Periodical and final exam
	Formula of the final mark	0.5 x D + 0.5 x E

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COURSE TITLE	SEDIMENTARY BASINS – ANALYSIS AND SURVEY	CODE: IG 6102

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	244	10	E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Assistant Professor Dorin-Sorin Baciu, PhD	Geology

PREREQUISITES	Structural Geology; Sedimentology and Stratigraphy

OBJECTIVES	Presentation of the sedimentary basins, using structural, geophysical and biostratigraphical methods to analyze and evaluate the potential oil.
COURSE CONTENTS	Analysis of basins – the study of sedimentary rocks to determine: subsidence history, stratigraphic succesion, paleogeographic evolution. Tools of analysis: geological (outcrop, digging), geophysical (seismic, gravimetric), computers. What is a sedimentary basin? Repositioning of the sediment, the subsidence in relation to the surrounding areas, different shapes, sizes and mechanisms of the formation. The mechanisms of sedimentary basins: the main mechanisms in the subsidence / isostatical readjustment (uplift) regional, loading, dynamic effects. Classification of sedimentary basins: 26 types of basins – Ingersoll and Busby (1995) – divergence, interplate, convergence, transform, hybrid; the processes of formation of sedimentary basins – Allen and Allen, 2005; basins in relation to to tectonic arrangement; Wilson cycle, rift, forearc basins and backarc, foreland basins. Sedimentary basins and sequential stratigraphy. Paleocurrents and distribution of the sediment. Paleotectonic and palaeogeographic reconstruction. Modelling of sedimentary basins.
PRACTICAL	Laboratory work objectives: study methods of facies analysis, geophysics, seismic interpretation in basin sedimentation, sequential stratigraphy. Interpretations of bathymetric charts, geologic sections from drilling data, with examples of sedimentary basins. 3D reconstruction of the sedimentary basin based on seismic data.
TEACHING METHODS	Interactive presentation, debates

RECOMMENDED READING	Allen P.A., Allen J.R. (2005). Basins analysis- Principles and Applications, 2nd edition, Blackwell Publishing 549 p. Brookfield E.M. (2004). Principles of Stratigraphy. Blackwell Publishing, 340 p. Busby and Ingersoll (1999). Tectonics of Sedimentary Basins, Blackwell Publishing. Einsele G. (1992). Sedimentary Basins: Evolution, Facies and Sediment Budget, 2nd edition, Springer-Verlag. Berlin 792 p.

ASSESSMENT METHODS		
	Conditions	Fulfilment of course and laboratory obligations
	Criteria	Cumulative assessment
	Way of evaluation	Practical and written exam
	Formula of the final mark	0.70 E + 0.30 P

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COURSE TITLE	ROMANIAN PETROLIFEROUS BASINS	CODE: IG 6103

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	I	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		56	244	10	D + E	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Professor Mihai Brânzilă, PhD	Geology

PREREQUISITES	Stratigraphy; Structural Geology; Geological Cartography; Geophysics; Petroleum Geology; Geology of Romania

OBJECTIVES	1. Knowledge systematization and thoroughness related to large petroliferous basins specific to the Romanian structural units. 2. Outlining the importance of geological research in defining the petroliferous basins. 3. Using specific data for economic purposes.
COURSE CONTENTS	1. Geological structure of Romanian territory and potential hydrocarbon-bearing structural units. 2. Petroliferous structures of the Carpathian orogen and the Northern Dobrudja orogen. 3. Petroliferous structures of the Moldavian Platform. 4 . Petroliferous structures of the Barlad Platform. 5. Petroliferous structures of the Wallachian Platform. 6. Petroliferous structures of the Transiylvanian trough. 7. Petroliferous structures of the Pannonian trough. 8. Petroliferous structures of the Romanian shelf of the Black Sea.
PRACTICAL	1. Course thoroughness for achieving superior competences. Analysis of specific graphical materials. 2. Analysis of the most representative petroliferous structures from each reviewed structural unit, following structural and stratigraphical criteria.
TEACHING METHODS	Debating lecture, independent observation and problem spotting.

RECOMMENDED READING	Gabor T. et al. (1997). Cimmerian and Alpine stratigraphy and sstructural evolution of the Moessian Platform (Romania, Bulgaria) AAPG Memoir 68. Ionesi L. (1994). Geologia unitatilor de platforma si a Orogenului Nord Dobrogean, Ed.Tehnica Bucuresti. Mutihac V.et al. (2004). Geologia Romaniei Ed.Did. si Ped. R.A. Bucuresti Paraschiv D. (1975). Geologia zacamintelor de hidrocarburi din Romania,Stud.Tehn.si Ec.IGG,A,10, Bucuresti Robinson A.G. et al. (1996). Petroleum geology of the Black sea, Marine and Petroleum Geology 13. Sandulescu M. (1984). Geotectonica Romaniei, Ed.Tehnica Bucuresti.

ASSESSMENT METHODS		
	Conditions	Fulfilment of professional commitments (lectures and practical works).
	Criteria	Cumulative evaluation.
	Way of evaluation	During the semester and exam.
	Formula of the final mark	50% D + 50% E

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COURSE TITLE	SPECIAL TOPICS IN HISTORICAL GEOLOGY	CODE: IG 6204

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2	32	80	220	10	M	Romanian/English

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Corneliu Horaicu, PhD Assistant Profesor Paul Ţibuleac, PhD	Geology

PREREQUISITES	Palaeontology; Stratigraphy; Sedimentary, Igneous and Metamorphic petrology; Structural geology

OBJECTIVES	Debating of several issues regarding the evolution of the Earth, from the Big-Bang explosion until the Recent: forming of the terrestrial crust, paleogeographical dynamics (global tectonics), the appearance of life, biodiversity and extinction in the history of life, paleoclimates, orogenesis, ores etc. Forming a synergic conception of the Earth and its spheres (inthe intrinsic sense and in the relationship with the Solar System).
COURSE CONTENTS	Planetary accretion and the development of protocratons – forming of the Earth in the ensemble of the Solar System (Venus – a possible crust analogue with the Early Earth). Dynamics of the Hadean (and Archean) mantle: the importance of the convection currents in the appearance of the Earth crust. Evidence for the former existence of the terrestrial protocrust. Volume and the impact of meteorites and comets on the Early Earth. The oldest terrestrial mineral record. Archean: The continental nuclei of the first tectonic plates. The appearance of life. The *Prokarya Domain - Bacteria*. Proterozoic: The changes made by the presence of free oxygen in the Earth's atmosphere on life and the teresstrial crust. *Prokarya* and the appearance of the *Eukarya Domain.* The Ediacara fauna and its significance. Proterozoic orogenesis - mineral ores. Rodinia – the unique continent. The significance of the glaciation from the end of the Proterozoic. Paleozoic: Biodiversity and extinction. Causes of the major extinctions in the Paleozoic: basaltic eruptions, sea-level fall, anoxic conditions in the oceans, continental drift in the polar regions: Ordovician-Silurian (glaciation), Late Devonian, Permian-Triassic. Global tectonic framework in the Paleozoic. Relationships between the paleogeographical evolution, the orogensis and ores, and the main paleobioprovinces. Evidence of several Gondwana terrains in the Romanian Carpathians. Mesozoic: Pangaea – the unique continent. Panthalassa – the global ocean and the ways in which Recent oceans have appeared. Global tectonic framework in the Mesozoic. Taxon-range Zones for the Mesozoic (on the basis of ammonites) – a classic biostratigraphy. Causes of the major extinctions in the Mesozoic (intense vulcanism, impact of the Earth with a big asteroid): Triassic – Jurassic, Cretaceous – Tertiary. Alpine orogenesis – ores. Evolution of the Romanian territory in the Alpine orogenesis. Neozoic: Global tectonic framework: steps to the recent configuration of the Globe's surface. Evolution of life, the adaptive radiation of mammals; migration of mammals through the isthmuses; the appearance of the order *Primates* and the *Homo sapiens* species. Quaternary glaciation. Minor extinctions. The Recent disappearance of species: the sixth major extinction in the history of the Earth? The end of the Alpine orogenesis; implications on the Romanian territory.
PRACTICAL	The laboratory classes follow the exemplification and use of the concepts presented during the lectures. Studies of different Precambrian rocks from the nuclei of recent continents (Baltica, Laurentia, Gondwana). Analysis of the geological evolution of a particular area using geological maps. Debating of several geological cross-sections through the major structural-units of Europe. Analysis of the paleogeographical configuration from different periods and noting the regularities followed by several personal simulations of global tectonic framework on other geological periods. Debating the causes of major extinctions. Exercises viewing the importance of fossil records; anticipation of further life on the basis of Recent apogees of taxa and the foreseeing of paleogeographical evolution. Exercises on the absolute dating of rocks. Writing an essay on topics from the lectures.
TEACHING METHODS	Lectures, lecture-debates, applications on complementary material. Specific field studies; following the patterns of the paleontological papers. Using questions and answers when dealing with controversial issues.

RECOMMENDED READING	Burg J.-P., Ford M., eds.(1997). Orogeny through time – The Geological Society, London. Van Kranendonk M. J., Smithies H., Bennett Vickie (2007). Earth's Oldest Rocks. Elsevier Science & Technology Books. Salvador A., (edit.-1994). International Stratigraphic Guide. Second edition. The International Union of Geological Sciences and The Geological Society of America, Inc. Tătărâm N. (1988). Geologie stratigrafică şi paleogeografie. Vol. I, II Editura Tehnică.

ASSESSMENT METHODS	Conditions	Passing the practical test at the end of the semester. Writing an essay on course topics.
	Criteria	Ability to notice, to interpret and to correlate the information of the geological context (fossils, types of rocks, sedimentology, tectonic framework, geochemistry etc.) Ability to extract the main significances for the argumentation of geological evolution in real and hypothetical areas.
	Way of evaluation	Written and oral examination. Debating the essay.

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COURSE TITLE	ADVANCED SEDIMENTOLOGY	CODE: IG 6205

LEVEL (UG-undergraduate/M-master) AND YEAR OF STUDY (1,2,3,4)	M2	SEMESTER	II	STATUS (CO-COMPULSORY/OP-OPTIONAL)	CO

NUMBER OF HOURS/ WEEK				TOTAL HOURS/ SEMESTER	TOTAL HOURS OF INDIVIDUAL WORK	CREDITS	EVALUATION TYPE (D-DURING THE SEMESTER, C-COLLOQUIUM, E-EXAM, M-MIXT)	LANGUAGE
L	S	P	Pr.					
2		2		48	252	10	M	Romanian

LECTURER	POSITION, NAME AND SURNAME	DEPARTMENT
	Associate Professor Crina Miclău, PhD	Geology

PREREQUISITES	Sedimentology and Stratigraphy

OBJECTIVES	The course is intended to teach you that in to understand the nature of sedimentary deposits in subsiding basins it is necessary to understand the generation of sediment in the source area and the nature of erosion and transport through the drainage network to the place of deposition. These processes are dependent upon tectonism and climate both in the uplands, on the one hand, and upon eustasy, tectonism and climate in the depositional basins, on the other.
COURSE CONTENTS	Advanced treatment of facies characteristics and interpretation; processes of facies formation, and facies model concepts; applications of process sedimentology to siliciclastic successions, from non-marine to coastal and marine environments. An understanding of how to relate sedimentological evidence to regional and global stratigraphical cyclicity through the study of sequence stratigraphy. Development of geological skills relevant to the analysis of sedimentary sequences and their relative position within evolving sedimentary basins.
PRACTICAL	1) learning the key observations for recognizing depositional environments in outcrops and cores; enhancement of field skills. 2) facies models – exercise of interpretation of facies and paleogeography based on published case studies in crop, core or well-log data 3) one short research paper and verbal presentation required.
TEACHING METHODS	Interactive lectures and PowerPoint presentations of graphic material and photos.

RECOMMENDED READING	Bird E. (2008). Coastal geomorfology. An introduction, Second edition, Willey, 436 p. Bridge J., Demico R. (2008). Earth Surface Processes, Landforms and Sediment Deposits, Cambridge Univ. Press, 815 p. Collinson J.D., Thompson D.B. (1989). Sedimentary structures, Second Edition, Chapman and Hall, 207p. Einsele G. (1992). Sedimentary Basins, Springer – Verlag, 626p. Reading H. G. (ed.) (1996). Sedimentary Environments: Processes, Facies and Stratigraphy; Third Edition, Blackwell Science, 688 p. Ricchi Lucchi F. (1995). Sedimentographica. Photographic atlas of sedimentary structures, Second edition, Columbia Univ. Press, New York, 255 p. Selley R. (2000). Applied Sedimentology, Second edition, Academic Press, San Diego, 521 p. Walker R.G. şi James N.P. (eds.) (1992). Facies Models. Response to Sea Level Change, Geological Association of Canada, 409 p.

ASSESSMENT METHODS	Conditions	All the practical classes are compulsory as well as the field trip (if organized). I strongly recommend you to actively attend lectures and to read the topic of the day before the class in order to discuss it.
	Criteria	An active participation to in-class discussions during the practical classes and the completion of all the requested exercises and research paper are minimal conditions which must be met. The number and quality of questions you will ask during the practical classes and lectures will be considered a measure of your interest in this course.
	Way of evaluation	Colloquium, research paper presentation and final examination (written)
	Formula of the final mark	0.6 P + 0.4 E

III. GENERAL INFORMATIONS FOR STUDENTS

In order to be better informed about the aspects that interest you, you must take into account the following **specifications**:

- read the Student Guide and the faculty Regulations;
- read what is posted on the billboard of the faculty regularly;
- comply with the schedule of the secretariat when it comes to dealing with the public;
- your requests must be in concordance with the regulations in force;
- comply with the deadlines for the submitting of requests and options (it is very difficult to positively solve a request submitted after the deadline);
- in order **to view your academic progress ask for the eSIMS password**;
- for any question related to tuition fees, academic progress or other didactic and administrative issues address the secretary in charge of your speciality;
- communicate **any modification** of address, personal data or your decision to withdraw from the faculty in **maximum 7 working days**;
- students who pay tuition fees and do not announce that they intend to withdraw from the faculty in due time are sanctioned with a fine similar to the tuition fees.

INFORMATIONS ABOUT ACCOMODATION ON CAMPUS

For the accomodation of its students, "Alexandru Ioan Cuza" University offers the following campuses:

-the „Târguşor Copou" Campus
Adress: no. 1. Stoicescu Street
Phone: 0232-201378; 201377

-the „Titu Maiorescu" Campus
Adress: no. 7-9 Titu Maiorescu Street
Phone: 0232-201356; 201357; 201358

-the „Codrescu" Campus
Adress: no. 10 and 13 Codrescu Street; no. 7 and 17 Gh. Asachi Street
Phone: 0232-201622; 201575; 201623

-„Gaudeamus" Student Hostel
Adress: no. 1 Codrescu Street
Phone: 0232-201701

-„Akademos" Student Hostel
Adress:no. 9 Păcurari Street (across the street from the Central Library)

The right to accomodation is granted by the faculty's Accomodation Committee, in which representatives of the students in the Faculty Council must be included (for the "Gaudeamus" and "Akademos" student hostels, accomodation is possible based on a request addressed directly to the Rector's Office)

The principle that lies at the basis of the way in which the right to accomodation is granted to students is that of academic excellence. Thus, this right is granted to students and PhD candidates who are completing a full time academic cycle and who do not have their residence in Iasi. No discrimination between students whose studies are financed by the State and students who pay tuition fees is allowed.

Students who have lost both of their parents or who come from orphanages or foster families, as long as they have obtained a minimum of 20 credit points for the didactic tasks of the previous academic year, have priority when it comes to the granting of the right to accomodation.

Without exceeding 10% of all allotted places, the Accomodation Committee may also grant the right to accomodation to the following categories of students:

- students with children;
- students who benefit from the stipulations of art. 10, letter r) of Law no. 42/1990, republished, based on the Certificate released by the Committee for the enforcement of this law, certificate which confirms their status or the status of one of their parents as "Fighters for the Victory of the 1989 Romanian Revolution" or "Hero-Martyr" – with one of the following specifications: injured, prisoner, prisoner and injured, distinguished for remarkable deeds, accompanied by a patent signed by the President of Romania;
- students that suffer from TBC (under medical surveillance), diabetes, malignant diseases, severe malabsorption syndromes, chronic renal failure, asthma, epilepsy, congenital cardiopathy, chronic hepatitis, glaucoma, severe myopia, immunological diseases; students who are infected with HIV or who suffer from AIDS, ankylosing spondylitis or articular rheumatism, only with a medical recommendation that testifies to his or her ability to be part of groups and with the approval of the doctor from the Student Dispensary, or in other cases that will be analysed by the Accomodation Committee.

Renouncing one's right to accomodation in favour of another person (whether in exchange for money or not) is strictly forbidden.

Students who willingly renounce their right to accomodation from the very beginning or during the academic year lose the right to be provided accomodation for that particular academic year; students will not have their money refunded for any fees that they have been charged with. The database containing the names of the students who renounce their right to accomodation will be managed by DPSS through the centralization of the necessary date coming from each faculty.

Students whose studies are financed by the State and who trade their right to accomodation for sums of money will be expelled; students who pay fees will also lose the right to re-register at the "Alexandru Ioan Cuza" Iasi after having been expelled in this situation.

CAFETERIA

Students can have meals at the cafeteria of the "Titu Maiorescu" campus, recently renovated to meet European standards, under conditions similar to those offered by a restaurant, but at much lower prices. The students accomodated in one of the hotel-dormitories of the University, namely "Gaudeamus" and "Akademos,"

can have meals at the restaurant-cafeterias of these hotel-dormitories, but only based on their dormitory card.

MEDICAL ASSISTANCE

All the students of the University can benefit from free medical assistance (consults, prescriptions, the possibility of being referred to medical specialists, treatment) at **Doctor's office no. 7**:

Location: dormitory C8, ground floor (on the „Titu Maiorescu" Campus)
Phone: 0232-201324
(Paraschiva Gâscă, MD - Family Physician
Carmen Cărare, MD - Family Physician)

In order to become part of the database of the doctor's office, students will present the following documents to the doctors: the student card (student certificate), a document attesting that they benefit from medical insurance and the ID card.

Students that suffer from chronic illnesses will present the medical documents that attest their condition and the fact that they are under medical surveillance.

It is not required that students renounce the family doctors under whose care they used to be while at home if they wish to benefit from free medical assistance.

INSURANCE

Foreign students are advised to sign an insurance policy before arriving to Romania.

SCHOLARSHIPS AND MEANS OF SOCIAL WELFARE

According to the decision of the "Alexandru Ioan Cuza" University Senate no. 1 from 18.05.2006, scholarships derived from funds from the State Budget or from the income of the faculty or the University as such can be granted to full time students, **independent of the source of financing for their studies**. These scholarships can be:

Type of scholarship	Funding from the State Budget	Part of the income of the faculty/University
Scholarship for excellence (in sports, science or cultural-artistic activities)	X	X
"Olympic merit" scholarship for excellence	X	
Scholarship for merit	X	X
„Cum laude" scholarship		X
Study scholarship (1/full or 2/partial)	X	X
Welfare scholarship	X	X
Occasional welfare scholarship	X	X

Scholarship for excellence destined for students coming from rural areas		X
Contract-based study scholarship for students coming from rural areas	X	
Scholarship for cultural-artistic activities		X
Scholarship for social activities on campus		X
"Laudamus" scholarship		X

Scholarships are granted by the Social Committee (that includes representatives of the students) at the beginning of each semester.

LEARNING FACILITIES

The Faculty of Geography and Geology focuses on the optimization of the spaces it uses according to the specificity of the didactic processes, namely the necessity that the latter take place in properly equipped laboratories.

The Faculty of Geography and Geology has been granted a total surface of 3270,91 m^2, out of which 1553,01 m^2 are administered by the Department of Geography (30,32% for administrative purposes – including for the offices of the teaching staff, and 69,68% for didactic purposes), while 1717,90 m^2 are administered by the Department of Geology (23,88% for administrative purposes – including for offices of the teaching staff, 18,09% destined for the collections and the museum and 58,03% for didactic purposes).

Apart from these spaces, the Faculty also disposes of the technical equipment of its collaborators (INMH-the weather stations at Rarău and Tulnici; Environmental Protection County Agencies).

CLASSROOMS AND ROOMS DESTINED FOR PRACTICAL WORK

Lectures, seminars and practical work take place mainly in spaces belonging to the faculty (as specified below); some, however, take place in other spaces of the university.

Geography Department: Amphitheatre B8 ("Mihai David"), Amphitheatre A12 (building A), Mini-amphitheatre-Human Geography Laboratory B627, Mini-amphitheatre-Human Geography Laboratory B629 ("Gh. Năstase" Hall), Hall B654 – Remote Sensing and Air-photo-interpretation, Hall B655 – Cartography-Topography ("S. Panaitescu" Hall), Hall B656 – Human Geography Laboratory, Hall

B657 – Climatology and Meteorology Laboratory ("I. Gugiuman" Hall), Hall B658 Geomorphology Laboratory ("C. Martiniuc" Hall), Hall B659 – Soil Science Laboratory, Hall B660 – Hydrology Laboratory ("Maria Pantazică" Hall), Hall B661 – Applied Informatics Laboratory ("St. Popescu" Hall), Hall B662 – Regional Geography Laboratory, Hall B664 – Physical Geography of Romania Laboratory ("I. Bojoi" Hall), Hall B621 – Biogeography Laboratory ("I. Sarcu" Hall), Hall B622 – Geosystem Analysis Laboratory ("S. Mehedinți" Hall), Hall B623 – Geology Laboratory ("V. Băcăuanu" Hall).

Geology Department: Amphitheatre B6 ("Grigore Cobălcescu"), Hall B106 – Rock Mechanics, Hydraulics, Hydrogeology and Edaphology Laboratory, Hall B530, Hall B531 – Geoinformatics Laboratory, Hall B567 – "Ionel Simionescu" Hall for Practical Work, Hall B568 – "Ion Atanasiu" Hall for Practical Work, Hall B569 – "Grigore Cobălcescu" Hall for Practical Work, Hall B570 – Geochemistry of Natural Resources, Hall B571 – Chemical Analyses Laboratory, Hall B572 – Instrumental Analyses Laboratory, Hall B574 – Mineralogy, Petrography and Economic Geology Laboratory.

LIBRARY

Adress: 20A Carol I Boulevard, Building B, 3rd floor, "Al.I. Cuza" Univ. Iaşi
Phone: 0232-201475
Contact: Elena Ungureanu – person in charge of the library
E-mail: ele_ung@yahoo.com

The library of the Faculty of Geography and Geology of Iasi, founded in 1969, part of the "Mihai Eminescu" Central University Library, is located in **Building B** of the "Alexandru Ioan Cuza" University of Iasi.

The library has a total area of 230 m^2 (including a reading room for students, the book depository and the loan area). The 60-seat reading room and the loan area are located at the **3rd floor**, while the depository of the library, with all the books and regular publications, can be found at the ground floor, in **Room 356**.

The library offers a large amount of very valuable printed material (a total of over 74000 volumes, including old books, maps, atlases and sketches with heritage value). The library also benefits from a donation of approximately 1000 volumes from the University of Lausanne, Switzerland (the "E. M. Cosinschi" collection), which offers fluent and easy access to documentation for French-speaking students.

The library offers its beneficiaries the following:

- the online catalogue with all the publications from the collections of the Library of the Faculty of Geography and Geology (starting with September 2008, the traditional catalogues have been replaced by digital charts). As a result, the entire book deposit of the library is available by accessing the CUL online catalogue with its sub-catalogues);
- the online national catalogue – RoLiNeST (Romanian Library Network Science & Technology), which includes the databases of the most important libraries in Romania.

Services offered by the library:

-the possibility of accessing any document of the collections by borrowing it or by consulting it at the reading room;

-access to the online databases to which the library has subscribed – ProQuest, SpringerLink, Ebsco etc. ;

-specialized bibliographical information;

-the drafting of thematic bibliographies on demand;

-aid in the documentation process due to training courses organized at the beginning of the academic year and permanent guidance.

Schedule: **Monday - Friday**
Book loans: 8.30 - 13.00 and 15.00 - 19.00
Reading Room: 8.30 – 20.00

During the session, the reading room and the book loan point are open on **Saturday** from 08.30 to 18.00 and on **Sunday** from 08.30 to 13.00.

Access to the library is possible using the CUL pass, which is valid both at the headquarters of the CUL and in all its subsidiaries.

Apart from its specific beneficiaries, the library offers access to undergraduate level teachers and researchers (external beneficiaries).

RESEARCH AND STUDENT PRACTICE STATIONS

For their field practice, which is part of the curricula of the faculty, students usually use the research and practice stations of the faculty (Rarău, Tulnici) or of the University (Agigea, Potoci).

- **„*Ion Gugiuman*“ scientific research and academic practice station – RARĂU (Suceava County)**

Director : Assistant Professor Dan Lesenciuc, PhD

Located in the north of the Eastern Carpathians, in the Rarău Mountain, the station has been taken over from I.N.M.H. Bucharest by the Department of Geography in October 2000. Prior to this date, it has functioned as weather station, and it continues to have this function.

The station is located at an altitude of 1560 m, near the Rarău Peak, as part of an exceptional scenery, having Pietrele Doamnei (Lady's Stones), Piatra Şoimului (Stone of the Hawk), Piatra Zimbrului (Stone of the Aurochs), Pochii Rarăului etc. nearby. The particular diversity of the landscape (especially the karst terrain), the rich flora (containing numerous rare and endemic plant species), the presence of numerous scientific reservations („Moara Dracului“ Gorge, Slătioara Secular Forest and Todirescu Secular Pastures) and the boreal mountain climate all constitute reference elements, which can be capitalized in student activities and research activities.

The station is organized so as to be appropriate for didactic activities and academic research.

The station can offer accomodation for 40 persons, its building having a bathroom, a kitchen, a dining room and a classroom. 1st year and 2nd year students carry out their practice here, special emphasis being placed on meteorological observation, the geology of the region and bio-pedo-geomorphic study.

- **„*Simion Mehedinți*“ scientific research and academic practice station – TULNICI (Vrancea County)**

Director : Associate Professor Doru Toader Juravle, PhD

The Tulnici Weather Station is located at an altitude of 571 m, at the point of convergence between the Vrancea Mountains and the Vrancea Subcarpathian Depression. Starting with October 2000, the station carries out its activity under the patronage of the Department of Geography and under the guidance of specialists from I.N.M.H. Bucharest. From a physic-geographic point of view, the Tulnici Weather Station is located in a transition area, at the point of convergence between

two distinct regions as far as orography, climate, vegetation and soils are concerned. The recording of meteorogical data is also useful for the economic activity of the area – the Vrancea Subcarpathians are densely inhabited – given the agricultural usage given to the terrain, under the condition of the strong fragmentation of the relief.

Both for the practice of Geography students and for the didactic activities specific to the Department of Geography, the activities of the Tulnici Weather Station are extremely important. For this purpose, accomodation for 40 persons and a dining room are available. The location of the station – at the crossroads of the roads that link the Brasov Depression and the Vrancea Depression – also offers the possibility of hikes to the Soveja Resort, to the Putna Waterfalls and to the Tişiţa Gorge**.**

SCHOLARSHIPS ABROAD

The students of the Faculty of Geography and Geology can benefit from scholarships abroad (for at least one semester), within the ***Socrates-Erasmus*** program, in 25 partner universities from various countries of the **European Union** (Paris, Brussels, Lyon, Dijon, Rouen, Clermont Ferrand, Bordeaux, Nice, Reims, Liège, Neuchatel, Geneva, Aarhus, Torino, Trieste, Cagliari, Bari, Gent, St. Etiènne, Poitiers, Tours, Cadiz) and from **Canada** (Université Laval - Quebec).

Students who specialize in Geochemistry within the field of Geology can benefit from ***CEEPUS scholarships*** in **Central and Eastern Europe**: Salzburg, Vienna, Graz, Leoben, Innsbruck, Brno, Olomouc, Wroclaw, Sosnowiec, Krakow, Warsaw, Bratislava, Kosice, Budapest, Zagreb, Belgrade, Ljubljana, Sofia and Tirana.

1st and 2nd year Bachelor Studies students (but not final year students), as well as Master Studies students who have passed all their exams (including those from the last session of exams) can apply for these scholarships.

Scholarships are granted, without exceeding the maximum number of scholarships available every year, based on a competition of files, the latter having to contain: a CV, a letter of application, the academic record of the student, a study project in which the concrete objectives pursued by the student and the results he or she envisages are motivated, a letter of recommendation from someone who is part of a teaching staff and a language certificate.

- SOCRATES – ERASMUS **Scholarships**

The SOCRATES - ERASMUS programme is a transnational cooperation programme in the field of education supported and financed by the European Union through the European Commission which is implemented in our University ever since 1996. Due mainly to its ERASMUS component, this programme has facilitated, up to the present date, the accomplishment of nearly 1000 student mobilities (Romanian students who study temporarily at European universities and foreign students who come to our university) and of numerous teaching mobilities (Romanian teachers who are invited to teach or to be speakers are conferences held in European universities and foreign teachers who come to our university for the same purpose).

Link: **http://www.infoiasi.ro/socrates**

- **Scholarships financed by the Government of Romania through the National Office for Study Scholarships Abroad**

Link: **http://www.edu.ro** or at the Department of International Relations and University Image.

- CEEPUS **Scholarships**

CEEPUS is an academic mobility programme shared with countries from Central Europe: **Austria, Hungary, the Czech Republic, Slovenia, Croatia, Bulgaria, Poland, Romania** and, in the future, **Macedonia**, which has already applied for integration into the programme. Romania's accession to the CEEPUS Agreement, which establishes the way in which the programme is carried out and the way in which it is managed, has been ratified through **Law 21 from March 17th 1997**.

The implementation of the programme in Romania is regulated by **Government Decision no. 172 from March 26th 1998**. Academic exchanges have been taking place starting with the 1998-1999 academic year. The leadership of the programme is ensured by the **Joint Committee of Ministers of Education** from the countries involved in the programme, which meets once a year. The international coordination, evaluation, development, logistics and popularisation of the program are ensured by the **CEEPUS Central Office** (two persons) with the headquarters in Vienna, while local implementation is ensured by the CEEPUS National Office (one person) from each of the participating countries. In Romania, the CEEPUS National Office functions within of the Ministry of National Education, the General Agency for International Relations: National Agent – Oana Rusu; phone/fax: 021-3157736, 30 General Berthelot Street, 70738 Bucharest. In every Romanian university, within the office for foreign relations, there is a person in charge of the CEEPUS programme who can offer useful information and application forms and offers assistance to teachers and students when it comes to the procedures necessary for the participation to various activities organized within the programme.

Link**: http://www.edu.ro/ceepus.htm**

LANGUAGE COURSES

Foreign students who come to Romania within the ERASMUS programme can attend during their stay, upon demand, a free Romanian language course offered by the *Office for Romanian Language for Foreign Students* within the *Romanian Language and Comparative Literature Department* (Phone/fax: +**40 232 201553**).

Foreign students who come on their own to Romania can benefit from one year of paid Romanian language courses within the Department mentioned above.

FACILITIES FOR SPORTS

Students can have access to the gym and sport fields of the Faculty of Physical Education and Sport (situated near Building A of the "Alexandru Ioan Cuza" University of Iasi).

RECREATIONAL AND LEISURE ACTIVITIES

Bachelor Studies and Master Studies students that have passed all the examinations have the possibility of benefiting from free **student camps** to the mountains or to the seaside twice a year. Applicants are selected based on their academic results, the results achieved in their research activity and their degree of involvement in scientific, cultural, artistic or sport activities.

The complete methodology based on which camp tickets are granted and distributed can be consulted by accessing the website of the Agency for Student Support: **www.agentiastudentilor.ro**.

Other leisure activities (mountain tourism, sports etc.), apart from trips, visits to museums, exhibitions, theatric performances, movies, concerts etc., can be performed in the spare time in the research and practice stations of the faculty, organized by the *Geography and Geology Students' League*.

STUDENT ASSOCIATIONS

1. GEOGRAPHY AND GEOLOGY STUDENTS' LEAGUE
Faculty of Geography and Geology
„Alexandru Ioan Cuza" University of Iaşi
20A Carol I Boulevard, Iaşi, 700505, Romania

It is a non-governmental, non-politic and non-profit organization whose purpose is to support and promote the socio-professional interests of the students of the Faculty of Geology and Geology of Iaşi, to support the modernization of geographical, geological and geochemical education in Iaşi, as well as to strengthen ties with academic and scientific research centres from Romania and from abroad.

G.G.S.L. has approximately 150 members, out of which over 70 are active members, each acting in one of the four departments of the league: **Projects**, **Human Resources**, **Marketing** and **Fund Raising**.

The projects initiated by G.G.S.L. become more numerous every year and they have an increasing impact upon the student life of Iaşi. Thus, the league has organised numerous activities as part of student festivals such as Unifest or FestudIS, for instance *discussions*, *debates*, *social* and *humanitarian projects*, *photography competitions* (Geoblitz), *geography contests* (GeoMondIS), *touristic orientation competitions* (SthudIStur), *communication*, *team work*, *management and project devising training sessions*, *ecologisation* or *environmental education campaigns*, *concerts and parties* and, last but not least, *trips* to the Ceahlău, Călimani, Rarău or Hăghimaş mountains, hiking expeditions, camping expeditions and campfires.

In the future, G.G.S.L. aims at carrying on the tradition of large-scale projects through which to contribute to the development of student activities within the academic environment of Iasi. The rising of cultural and educational standards in the academic environment, the promotion of civic responsibility among young

people, as well as the facilitation of international exchanges of persons, knowledge and information are other development directions of the organisation.

In order to fulfil these objectives, G.G.S.L. has opened itself towards Europe. If at the national level it is one of the most powerful organisations that are members of the RSU (Romanian Students' Union), since October 2008 it has become part of the European Geography Association for Students and Young Geographers (Egea) and has re-established the Romanian branch of this European organization. This context offers larger access to national and European projects, as members of the league participate to meetings and workshops (**Romanian Freshmen Weekend**) and organize exchanges with the branches in Cluj and Timişoara (**Triple Romanian Exchange).**

Apart from this, G.G.S.L. members can take part in the annual regional congresses of Egea, which are held in Holland, Poland, Serbia etc.

Admission into the league:

In order o become a member of G.G.S.L., you can send an e-mail to lsgg_iasi@yahoo.com or you can come personally, every Tuesday from 8 P.M. in amphitheatre B8.

Contact:

Chairman: Mihail Eva, e-mail: e_mihail@yahoo.com
Senior Vice-President: Ciprian Chelariu, e-mail: cip_lsgg@yahoo.com, tel: 0746 181946
Secretary: Constanța State, e-mail: cathi_26@yahoo.com, tel: 0742 852819

2. GEOPALIS – PALEONTHOLOGY STUDENT CLUB
Department of Geology, Faculty of Geography and Geology, „Alexandru Ioan Cuza" University, 20A Carol I Boulevard, Iaşi, 700505, Romania

Brief history:

"Geopalis" is a Paleonthology student club which carries out its activity under the patronage of the Department of Geology of the Faculty of Geography and Geology from the "Alexandru Ioan Cuza" University of Iaşi.

It was initiated in 2000, as part of a practical activity carried out with the Geology-Paleonthology and Geochemistry-Mineralogy students in the Câmpulung Moldovenesc – Fundu Moldovei area.

Members:

The members of this club are students of the faculty from various years of study, but they can also be students from other faculties or high school students from areas in which there are significant fossil deposits. There is no fee, but there is the obligation of participating relatively constantly to the activities planned by the club.

Aims of the club:

- the highlighting of the main contributions brought to paleontological research by geologic figures from Iasi. Based on the works they have published and on testimonies and oral evocations, the scientific profiles of the following personalities

will be sketched: Grigore Cobâlcescu, Ion Simionescu, Radu Sevastos, Ion Athanasiu, Theodor Văscăuţanu, Neculai Macarovici, Mihai David, Pierre Jeanrenaud, Natalia Paghida Trelea;

- the initiation of the students in paleontologic research; practical applications carried out on the main filums with fossil representatives, based on the material prelevated while on the field; the enriching of the collections of the Department, the reconditioning and inventory of didactic material, the making of moulds based on rare specimens;

- the initiation of new collections, under various themes such as: "Repedea Hill–the birth of Romanian geology", "Ammonites–the wheels of mezozoic seas–Praşca Peak, (Rarău Sincline, Eastern Carpathians)", "Present-day Molluscs–the architecture of nature."

- scientific research based on various topics which the members of the clubs can develop into papers for the national symposiums that are organized yearly in one of the three centres with faculties specialized in paleontology (Bucharest, Cluj and Iaşi), as diploma papers or as papers for other scientific manifestations.

- practical applications carried out every weekend, meant to complete those stipulated in the curriculum. The organisation of specialized camps during the summer holiday, in areas which will be decided upon based on the financial means, the facilities they offer and the scientific interest they present.

- meetings with present-day personalities of Romanian and international palaeontology; among those invited so far are Mathias Harzhauser – the Museum of Natural Sciences in Vienna, Christian Meister – he Museum of Natural Sciences in Geneva, Florinel Florea – Executive-geologist of Geomold S.A. Câmpulung Moldovenesc.

- the popularisation of palaeontology at the level of primary and secondary education, through the involvement of students from the localities where the practical applications will be carried out and through the donation of small collections to schools; a section related to the geologic evolution, flora and fauna of the western part of the Moldavian Platform (the Fălticeni-Baia-Boroaia area) is being founded within the "Mihai Băcescu" Museum of Fălticeni.

- exhibitions of graphics and photography based on topics inspired from Palaeontology.

The club is aiming at signalling the presence of paleontological sites of scientific significance to the authorities and at establishing at least the minimum protective measures when it comes to these sites.

Facilities:

- the members of the club benefit from the facilities offered by the laboratories of the Department of Geology;

- the members will also benefit from the equipment of the club (tents, mainly) for field research and accommodation discounts in the Cîmpulung Moldovenesc and Fălticeni areas.

3. IAŞI STUDENT CHAPTER OF AAPG

Department of Geology, Faculty of Geography and Geology, „Alexandru Ioan Cuza" University, 20A Carol I Boulevard, Iaşi, 700505, Romania

Brief history:

ISC is a student association affiliated to the professional association AAPG – Tulsa, Oklahoma, USA (American Association of Petroleum Geologists), founded in 1917 and having as main purpose the research and capitalisation of natural fuels. AAPG includes several divisions: EMD (Energy Mineral Division), DPA (Division of Professional Affairs), DEG (Division of Environmental Geosciences) and it has over 30, 000 members from approximately 116 countries.

ISC was founded during the 2001-2002 academic year, once the national student symposiums were resumed in the three great academic centres specialized in the field (Bucharest, Cluj-Napoca and Iaşi).

Members:

The members of this association are undergraduate students, post-graduates and PhD candidates from our faculty who have excelled in the scientific research activity. The mandatory condition for membership is at least one participation to the national symposiums of the field. The members must pay an annual 20 dollar fee, but, based on their activity, students have the possibility of being sponsored by American companies (particularly Halliburton) through AAPG as well.

Main aims:

- the main aim is the promotion of scientific activity among students; thus, our association organizes, by turns, a national symposium once every three years, which is attended by students from Bucharest, Cluj-Napoca and Petroşani.

- meetings with personalities from geological companies, meant to introduce students into the environment of research applied to useful mineral substances; among the guests we can list the following: Andrei Viforeanu – CEO at Geomed Impex SRL Bucharest and Florinel Florea – Executive-Geologist at Geomold S. A. Câmpulung Moldovenesc.

- practical applications in different structural units of Moldavia (the Rarău Syncline – Câmpulung Moldovenesc, Pojorâta, Fundu Moldovei), Lacu Roşu (Red Lake), Bălan - Harghita, Stefăneşti – Botoşani, Fălticeni – Suceava etc.

- exhibitions of graphics and photography dealing with geological topics or topics inspired from practical applications.

Facilities:

The members of the association receive the "AAPG Bulletin" and "Explorer" magazines monthly (lately, in electronic format, but, upon demand, printed issues can also be received). They have the possibility of participating in student-addressed activities organized all around the world (for jobs, scientific competitions, training courses, field applications). As members, they benefit from accommodation,

participation fee, parking etc. discounts while participating to events organized by AAPG.

Members can also enter the competition for grants that is organized annually.

THE BUREAU FOR STUDENT AFFAIRS

The Centre for Professional Guidance, Career Counselling and Placement (CIPO) offers free counselling and recruiting services for the students of the "Alexandru Ioan Cuza" University of Iasi.

Adress: „Codrescu" Campus, no. 7 Gh. Asachi Street, Hall of Residence C11, 1st floor, rooms 28-29, 52-53.

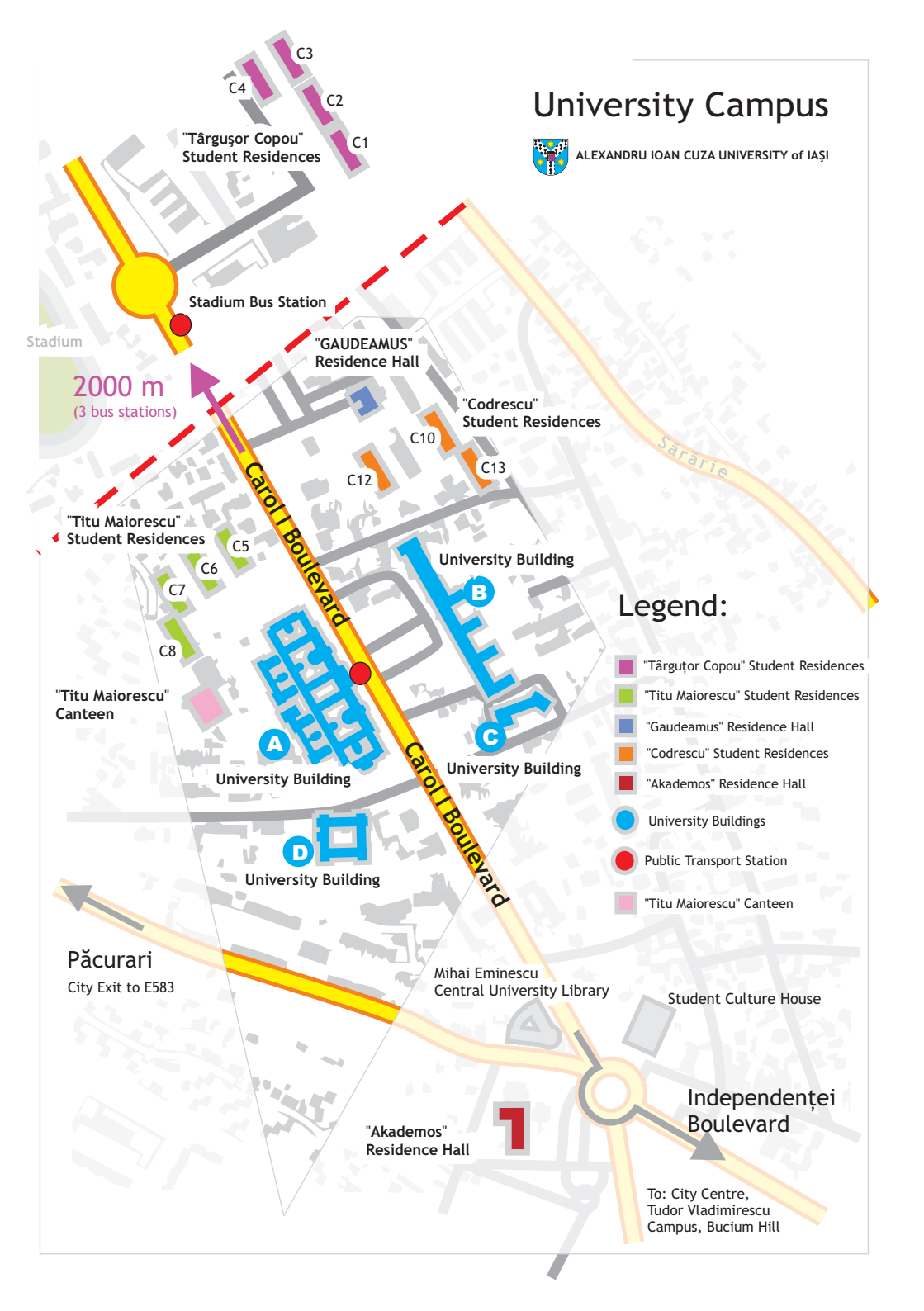
Phone: 0232-201576, 201579; fax.: 0232-201576

E-mail: cipo@.uaic.ro

USEFUL TELEPHONE NUMBERS

THE NATIONAL UNIQUE SYSTEM FOR EMERGENCY CALLS			**112**
AMBULANCE			**961**
FIRE DEPARTMENT		Iasi	**981**
POLITIA	County Inspectorate	Central office	**440720**
		Dispatcher	**446666**
	Municipality	Central office	**440020**
		Dispatcher	**446840/955**
		Officer on duty	**446850/955**
	Traffic		**440070**
CORPOSAN MOBILE MEDICAL SERVICES			**413130**
ANTI-AIDS ROMANIAN ASSOCIATION, AIDS HOTLINE			**210024**
C.F.R. AGENCY			**447673**
MAIN TRAIN STATION (INFORMATION)			**446333**
BUS TERMINAL			**446587**
TAXICOM, dispatcher			**953** **446593**
GO-TAXI, dispatcher			**222060**
TAXI ROMARIS, dispatcher			**215555** **222222**
TAXI LYON TRANZ, dispatcher			**214214**
RO TAXI, dispatcher			**215155**
TAXI SAT, dispatcher			**272555**
TRANSGYW TAXI, dispatcher			**216666**
TAROM AGENCY			**415239**

AIRPORT (INFORMATION)			**474059**
			271590
			430177
DISPATCHERS	R.A. Gaz-Metan (Gas-Methane)		**441737**
	R.A. Apa-Canal (Water-Sewage)		**217271**
		Central office	**215410**
	Renel		**447070**
		Malfunctions	**929**
	Heating		**441956**
	R.A. Locuinta (The Home)		**412434**
	Telephones - Malfunctions		**921**
	Environment protection		**447010**
FINANCIAL GUARD			**414065**
FINANCIAL ADMINISTRATION			**443030**
TRIBUNAL			**446300**
PROSECUTOR'S OFFICE			**212566**
CHAMBER OF COMMERCE			**417757**
COUNTY MILITARY CENTRE			**446370**
COUNTY GENERAL STAFF FOR CIVIL DEFENCE			**214470**
HOTELS	Moldova		**442225**
	Traian		**443330**
	Unirea		**442110**
	Continental		**414320**
	Sport		**232800**
	Orizont		**412700**
PAID POLYCLINIC: information			**417244**
COUNTY OFFICE OF CONSUMER PROTECTION			**445392**
ENVIRONMENT PROTECTION AGENCY			**214357**
"PRO-FAMILIA" MEDICAL LABORATORY			**230431**
SALVANIM" FOUNDATION FOR ANIMAL PROTECTION-notifications about lost/found pets			**212184**
Nicolina CUSTOMS			**442817**
POSTAL OFFICE/ CUSTOMS OFFICE no. 13			**413093**
REGIONAL CUSTOMS IASI			**427779**
			430154


University Campus
ALEXANDRU IOAN CUZA UNIVERSITY of IAȘI
"Târgușor Copou"
Student Residences
C1
C2
C3
C4
Stadium Bus Station
Stadium
2000 m
(3 bus stations)
"GAUDEAMUS"
Residence Hall
"Codrescu"
Student Residences
C10
C12
C13
Sărărie
Carol I Boulevard
"Titu Maiorescu"
Student Residences
C5
C6
C7
C8
University Building
B
"Titu Maiorescu"
Canteen
A
University Building
C
University Building
D
University Building
Carol I Boulevard
Legend:
"Târgușor Copou" Student Residences
"Titu Maiorescu" Student Residences
"Gaudeamus" Residence Hall
"Codrescu" Student Residences
"Akademos" Residence Hall
University Buildings
Public Transport Station
"Titu Maiorescu" Canteen
Păcurari
City Exit to E583
Mihai Eminescu
Central University Library
Student Culture House
Independenței
Boulevard
"Akademos"
Residence Hall
To: City Centre,
Tudor Vladimirescu
Campus, Bucium Hill