BACHELOR'S DEGREE
GEOCHEMISTRY
3RD YEAR OF STUDY, 1ST SEMESTER

COURSE TITLE	PLENTARY GEOLOGY
COURSE CODE	31020030020SL1222228
COURSE TYPE	full attendance
COURSE LEVEL	1st cycle (bachelor's degree)
YEAR OF STUDY, SEMESTER	3rd year of study, 1st semester
NUMBER OF ECTS CREDITS	5
NUMBER OF HOURS PER WEEK	4 (2 lecture hours + 2 seminar hours)
NAME OF LECTURE HOLDER	Professor Ovidiu Gabriel Iancu
NAME OF SEMINAR HOLDER	Assistant Lecturer Iuliana Buliga
PREREQUISITES	Geophysics

A GENERAL AND COURSE-SPECIFIC COMPETENCES

General competences:

→ Developing students' interest for independent research and their participation in scientific events

→ Teaching the necessary steps in the complete analysis of meteorites

Course-specific competences:

→ The application of theoretical and experimental models regarding geological processes, as well knowledge from related fields, for the understanding of the phenomena occurring on the planets of the Solar System and their satellites

B LEARNING OUTCOMES

→ Students accumulate knowledge on the main geological processes taking place within the Solar System, as well as the geological and geochemical particularities of terrestrial planets and satellites

→ Students become capable of assessing meteorites both macroscopically and microscopically, as well as classifying them based on analyses of major and trace elements

C LECTURE CONTENT

Week	Title of lecture	Teaching methods	Duration
1	Definitions, history, conceptions regarding the position of the planets in the Universe, the evolution of the Universe, space missions with/without human crew	Lecture based on video projection	2 hours
2	The Sun: composition, location, size, nuclear fusion, radiative zone, convection zone, photosphere, chromosphere, corona,	Lecture based on video projection	2 hours

		solar wind		
	3	Mercury (geological features and the role played in the formulation of theories regarding planet formation)	Lecture based on video projection	2 hours
	4	Venus (geological processes, landforms, soil chemistry, volcanism)	Lecture based on video projection	2 hours
	5	Planet Earth I (summary of Earth's geology)	Lecture based on video projection	2 hours
	6	Planet Earth II (synthesis of Earth's volcanism) and assessment (V1)	Lecture based on video projection	2 hours
	7	Meteorites (classification, minerology), impact craters	Lecture based on video projection	2 hours
	8	The Moon (geological processes, landforms, chemical composition of different types of lunar rocks, lunar meteorites)	Lecture based on video projection	2 hours
	9	Mars (geological processes, volcanism, soil chemistry, Martian meteorites)	Lecture based on video projection	2 hours
	10	Jupiter (models of its interior, magnetosphere); comets (details on the impact between comet Shoemaker Levy 9 and Jupiter)	Lecture based on video projection	2 hours
	11	The geology of Jupiter's satellites Callisto, Europa, Ganymede, Io and Amalthea	Lecture based on video projection	2 hours
	12	Saturn (structure, rings, the geology of its satellites Titan, Mimas, Enceladus, Tethys, Dione, Rhea and Yapetus)	Lecture based on video projection	2 hours
	13	Uranus (structure, the geology of its satellites Miranda, Ariel, Umbriel, Titania and Oberon)	Lecture based on video projection	2 hours

	14	Neptune (structure, the geology of its satellite Triton); Pluto, asteroids and assessment (V2)	Lecture based on video projection	2 hours

D RECOMMENDED READING FOR LECTURES

1. Bell J. (2008) The Martian Surface - Composition, Mineralogy and Physical Properties, Cambridge University Press, 636 p.; 2. Faure G., Mensing T. M. (2007) Introduction to Planetary Science – The Geological Perspective, Springer, 526 p; 3. McSween H.Y. jr. (1993) - Stardust to Planets – A Geological Tour of the Universe, St. Martin's Griffin, New York, 241 p.

E SEMINAR CONTENT

Week	Title of seminar	Teaching methods	Duration
1	Notions of plate tectonics	Lecture based on video projection, debate, case studies	2 hours
2	Earth's inner structure	Lecture based on video projection, debate, case studies	2 hours
3	Volcanism on Earth	Lecture based on video projection, debate, case studies	2 hours
4	Volcanic hazards	Documentary, debate, case studies	2 hours
5	Revision of plate tectonics, Earth's inner structure and volcanism	Test	2 hours
6	Terrestrial rocks – generalities	Lecture based on video projection, debate, case studies	2 hours
7	Geological processes and landforms: mountains	Lecture based on video projection, debate, case studies	2 hours; tectonic map of the Earth
8	Revision of rocks and landforms	Oral assessment	2 hours; tectonic map of the Earth
9	The satellites of the outer planets Asteroids and comets	Documentary, debate and case studies	2 hours
10	Volcanism in the Solar System	Lecture based on video projection, debate, case studies	2 hours
11	Analysis and classification of extraterrestrial rocks (lunar rocks, meteorites)	Lecture based on video projection, debate, case studies	2 hours
12	Geological maps and satellite maps (photogeologic mapping: the Moon and Mars)	Lecture based on video projection, debate, case studies	2 hours

	13	Comparison between the planets of the Solar System	Documentary, debate, case studies	2 hours
	14	Final assessment	Final assessment	2 hours

F	RECOMMENDED READING FOR SEMINARS
	1. Pasachoff J. M. (1998) – Astronomy, from the Earth to the Universe, 643 p.; 2. Seeds M. A. (2001) – The Solar System (2nd edition), Brooks/Cole, 616 p. www.nasa.gov
G	EDUCATION STYLE

LEARNING AND TEACHING METHODS	Lecture based on video projection; debate; case studies
ASSESSMENT METHODS	Continuous assessment (lecture) – 60%; written+oral assessment and research papers (seminar) – 30%
LANGUAGE OF INSTRUCTION	English