Academic course description – paleontology II

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| bachelor’s DEGREE**Geological engineering** 2nd YEAR OF STUDY, 2nd SEMESTER |

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| **Course title** | **Paleontology II** |
| Course code | 31120120010SL1212229  |
| Course type | full attendance |
| Course level | 1stcycle (bachelor’s degree) |
| Year of study, semester | 2nd year of study, 2nd semester |
| Number of ECTS credits | 4 |
| Number of hours per week | 4 (2 lecture hours + 2 seminar hours) |
| Name of lecture holder | Assistant Professor Paul Țibuleac |
| Name of seminar holder | Assistant Professor Paul Țibuleac, Lecturer Bogdan Răţoi |
| Prerequisites |  |
| A | **General and course-specific competences** |
|  | **General competences**:* Effectively using additional sources and assisted learning resources in order to devise a research paper on a topic pertaining to the academic discipline
* Improving teamwork abilities within a research team

**Course-specific competences**:* The analysis and solving of issues related to the field of Geological Engineering based on knowledge of the fossil assemblages in rocks and their biostratigraphic significance (relative dating)
* The analysis and solving of issues related to the geological environment based on the paleontological, paleogeographic and paleoclimatic significances of fossil assemblages
* The analysis and solving of issues related to the evaluation and extraction of geological resources through relative dating and biostratigraphic correlation methods
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| B | **Learning outcomes** |
|  |  Upon completing the discipline, students become capable of: * explaining the relative dating of rocks and the delineation of the main eras in the geological history of the Earth
* describing the main morphological characteristics of a fossil specimen belonging to major taxa
* using the biostratigraphic significance of fossil assemblages in the correlation of layers in outcrops and wells and the evaluation and study of mineral resources
* analyzing the significance of fossil assemblages in paleoenvironmental reconstructions
* estimating the influence of various paleoenvironmental factors (bathymetry, salinity, temperature, currents etc.) which have instilled specific characteristics into sedimentary rock layers
* processing paleontological samples in the laboratory

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| C | **Lecture content** |
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| Week | Title of lecture | Teaching methods |  Duration  |
| 1 | Phylum *Mollusca.* Subphylum *Diasoma*: Classes *Rostroconchia* and *Scaphopoda* | Lecture | 1 hour |
| 2 | *Bivalvia. Mollusca* *incertae-sedis:* Classes *Tentaculoidea* and *Hyolitha* | Lecture. Problematization. | 3 hours |
| 3 | Phylum ***Arthropoda***: Subphylum *Trilobitomorpha -* Class *Trilobita*. Subphylum *Chelicerata:* Class *Merostomata.* Class *Arachnida* | Lecture | 2 hours |
| 4 | Subphylum *Mandibulata*: Classes *Ostracoda, Cirripedia, Malacostraca.* Superclass *Myriapoda.* Superclass *Hexapoda*. Phylum ***Annelida*** | Lecture | 2 hours |
| 5 | Phylum ***Brachiopoda*** Phyum ***Bryozoa*** | Lecture | 2 hours |
| 6 | Phylum***Echinodermata***: Subphylum *Asterozoa*. Subphylum *Homalozoa.* Subphylum *Blastozoa.* Subphylum *Crinozoa* | Lecture | 1 hour |
| 7 | Subphylum *Echinozoa* Phylum ***Hemichordata*** | Lecture | 2 hours |
| 8 | Phlum ***Chordata***. Subphylum *Cephalochordata*. Subphylum *Urochordata*. Subphylum *Conodontochordata*  | Lecture-debate. Problematization. | 2 hours |
| 9 | Subphyum *Vertebrata* Infraphylum *Agnata*Infraphylum Gnathostomata Superclass Fish | Lecture | 1 hour |
| 10 | Superclass *Tetrapoda*: Class *Amphibia* | Lecture. Demonstration.  | 2 hours |
| 11 | Superclass *Tetrapoda* Class *Reptilia* | Lecture | 4 hours |
| 12 | Class *Aves* | Lecture | 1 hour |
| 13 | Class *Mammalia*: Subclass *Prototheria (Monotremes).* Subclass *Eotheria.* Subclass *Allotheria* | Lecture. Problematization. | 3 hours |
| 14 | Subclass *Theria*:Infraclass *Metatheria – Marsupialia* Infraclass *Eutheria.* Order *Primates* | Lecture-debate. Problematization.  | 2 hours |

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| D | **Recommended reading for lectures** |
|  | Hanganu Elisabeta, Şuraru N., Griogorescu D. (1986) - Paleontologie, *Editura Didactică şi Pedagogică* Bucureşti, 456 p.Kardong, K. V., 1998. Vertebrates, comparative anatomy, function, evolution.*WCB MeGraw-Hill,* 747 p.Leakey R. (1995) – Originea omului*. Ed. Humanitas,* 285 p. |
| E | **Seminar content** |
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| Week  | Title of seminar | Teaching methods | Duration  |
| 1 | Phylum Mollusca. Classes Rostroconchia, Scaphopoda and Bivalvia | Demonstration. Application.  |  3 hours |
| 2 | Phylum ***Arthropoda***: Subphylum *Trilobitomorpha -* Class*Trilobita* | Demonstration. Application.  | 2 hours |
| 3 | Phylum ***Brachiopoda***  | Demonstration. Application.  | 2 hours |
| 4 | Phylum ***Bryozoa*** | Demonstration. Case study.  | 1 hour |
| 5 | Phylum***Echinodermata***: Subphylum *Asterozoa*. Subphylum *Blastozoa.* Subphylum *Crinozoa* | Demonstration. Application. | 2 hours |
| 6 | Phyum***Echinodermata*** Subphylum *Echinozoa* Phylum ***Hemichordata*** | Demonstration. Application.  | 2 hours |
| 7 | Phylum ***Chordata***.  *Subfilum Vertebrata. Elements of the skeleton*  | Demonstration. Application. Problematization.  | 2 hours |
| 8 | Field application | Demonstration. | 2 hours |
| 9 | Infraphylum Gnathostomata Superclass Pisces Superclass *Tetrapoda*: Class *Amphibia*  | Demonstration. Application.  | 2 hours |
| 10 | Superclass *Tetrapoda*: Classes *Reptilia* and *Aves* | Demonstration. Application. | 2 hours  |
| 11 | Superclass *Tetrapoda*: Class Mammalia: dentition | Demonstration. Application. | 2 hours |
| 12 | Superclass *Tetrapoda*: Class Mammalia: axial skeleton | Demonstration. Application. | 2 hours |
| 13 | Superclass *Tetrapoda*: Class Mammalia: appendicular skeleton | Demonstration. Application. | 2 hours |
| 14 | Order Primates | Problematization | 2 hours |

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| F | **Recommended reading for seminars** |
|   |  Nistor-Hanganu Elisabeta, Manoliu Eugenia, Grigorescu D., Bragomir B., 1982 – Paleontologie. Lucrări practice. *Editura Universităţii Bucureşti,* 289 p.Turculeţ I., (1996) – Dicţionar de paleontologie. *Editura „Universităţii Al. I. Cuza”* Iaşi, 262 p., 26 pl., addenda. |
| G | **Education style** |
| learning and teaching methods | Lecture-debate, demonstration, application, problematization, case study |
| assessment methods | Ora assessment and research paper (lecture) – 70%, practical assessment and portfolio (seminar) – 30% |
| Language of instruction | English  |