Academic course description – paleontology I

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| bachelor’s DEGREE**Geological engineering** 2nd YEAR OF STUDY, 1st SEMESTER |

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| **Course title** | **Paleontology I**  |
| Course code | 31120120010SL1212119  |
| 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 |
| 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 | Introduction. Fossils and fossilization. The importance of fossils | Lecture-debate | 2 hours |
| 2 | Landmarks in the history of Paleontology. Elements of taxonomy and nomenclature | Lecture. Problematization. | 3 hours |
| 3 | **Superkingdom *Prokarya.* Kingdom *Bacteria*** | Lecture | 2 hours |
| 4 | **Superkingdom *Eukarya.* Kingdom** ***Protista:***phylum *Granuloreticulosa*: *c*lass *Foraminiferea.* | Lecture | 3 hours |
| 5 | Phylum *Sarcomastigopora*:class *Actinopoda.* *Protista incertae sedis – Calpionellidae* | Lecture | 2 hours |
| 6 | **Kingdoms *Chromista* and *Fungi*** | Lecture | 2 hours |
| 7 | **Kingdom *Animalia:***phylum *Porifera*;*Archaeocyatha* | Lecture | 2 hours |
| 8 | Phylum *Cnidaria* | Lecture. Problematization. | 2 hours |
| 9 | Phylum *Mollusca*:Introduction. Subphylum *Amphineura* Subphylum *Cyrtosoma*: Class *Gastropoda*  | Lecture | 2 hours |
| 10 | Class *Cephalopoda*:Subclasses *Endoceratoidea, Actinoceratoidea, Bactritoidea.* Subclass *Nautiloidea.* Subclass *Ammonoidea* | Lecture. Demonstration.  | 2 hours |
| 11 | Class *Cephalopoda*: Subclass *Ammonoidea. Aptichi* | Lecture | 4 hours |
| 12 | Subclass *Coleoidea* (Orders *Aulacocerida*, *Belemnitida*) | Lecture | 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.Turculeţ I., (1996) – Dicţionar de paleontologie. *Editura Universităţii „Al. I. Cuza”* Iaşi, 262 p., 26 pl., addenda.Ţibuleac P. (2006) – Paleontologie. Vol. I. *Ed. Tehnopress*, Iaşi, 366 p.  |
| E | **Seminar content** |
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| Week  | Title of seminar | Teaching methods | Duration  |
| 1 | Fossils and fossilization  | Demonstration. Application. Problematization. |  2 hours |
| 2 | Phylum *Granuloreticulosa*: Class *Foraminiferea* | Demonstration.  | 4 hours |
| 3 | Phylum *Sarcomastigopora –* Subclass *Radiolaria. Protista-incertae sedis – Calpionellidae* | Demonstration. Application.  | 2 hours |
| 4 | Phylum *Porifera* | Demonstration | 1 hour |
| 5 | Field application | Demonstration.  | 2 hours |
| 6 | Phylum *Cnidaria*  | Demonstration. Application. | 3 hours |
| 7 | Phyum *Mollusca* Subphylum *Cyrtosoma*: Class *Gastropoda* | Demonstration. Application. | 4 hours |
| 8 | Class *Cephalopoda -*  Subclasses *Actinoceratoidea, Nautiloidea* | Demonstration. Application. | 2 hours |
| 9 |  Class *Cephalopoda -*  Subclass *Ammonoidea* | Demonstration. Application. Problematization.  | 5 hours |
| 10 | Class *Cephalopoda.* Subclass *Ammonoidea –* Aptichi. Subclass *Coleoidea* | Demonstration. Application. | 3 hours  |

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| F | **Recommended reading for seminars** |
|   |  Nistor-Hanganu, Elisabeta, Manoliu, Eugenia, Grigorescu., D., Dragomir, 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. Ţibuleac, P.. 2004. Paleontologie. Sitematică-ghid practic. *Editura Tehnopress,* 238 p. |
| G | **Education style** |
| learning and teaching methods | Lecture-debate, demonstration, application, problematization |
| assessment methods | Ora assessment and research paper (lecture) – 70%, practical assessment and portfolio (seminar) – 30% |
| Language of instruction | English  |