COURSE SYLLABUS

1. Data about the program

1.1 Higher education institution	Babeș-Bolyai University
1.2 Faculty	Faculty of Biology and Geology
1.3 Doctoral school	Theoretical and Applied Geology
1.4 Field of study	Geology
1.5 Study cycle	Doctorate
1.6 Study program / Qualification	Doctoral training / Doctor of Geology

2. Course data

2.1 Name of discipline	Applications of Palynology in Geosciences						
2.2 Teacher responsible for lectures	Conf.dr. *habil.* Ioan Tanţău						
2.3 Teacher responsible for seminars	Conf.dr. *habil.* Ioan Tanţău						
2.4 Year of study	1	2.5 Semester	2	2.6. Type of evaluation	E	2.7 Course framework	O

3. Estimated total time of teaching activities (hours per semester)

3.1 Hours per week	4	Out of which: 3.2 Lectures	2	3.3 Seminars / Laboratory classes	2
3.4 Total hours in the curriculum	48	Out of which: 3.5 Lectures	24	3.6 Seminars / Laboratory classes	24
Allocation of study time:					
Study supported by textbooks, other course materials, recommended bibliography and personal student notes					30
Additional learning activities in the library, on specialized online platforms and in the field					20
Preparation of seminars / laboratory classes, topics, papers, portfolios and essays					15
Tutoring					2
Examinations					2
Other activities: -					

3.7 Individual study (total hours)	65
3.8 Total hours per semester	117
3.9 Number of credits	20

4. Preconditions (where applicable)

4.1 Curriculum	• Paleobotany and Palynology
4.2 Competences	•

5. Conditions (where applicable)

5.1 Conducting lectures	• Video logistics support
5.2 Conducting seminars / laboratory classes	•

6. Specific competences acquired

Professional competences	• C1. Identification of palynomorphs based on the study of their morphology and structure • C2. Acquiring modern, interdisciplinary principles for the use of palynomorphs in science. • C3. Use of specialized equipment and software for the processing and interpretation of primary data.

Transversal competences	• CT1. The use of assimilated knowledge in new, interdisciplinary contexts • CT2. Using theoretical notions in solving practical problems • CT3. Ability to critically evaluate scientific information

7. Course objectives (based on the acquired competencies grid)

7.1 The general objective of the course	• Acquiring the general principles of application of Palynology in Geosciences
7.2 Specific objectives	• Identification of palynomorphs. • Acquiring the principles of dating and correlation of geological rock formations using palynomorphs. • The use of palynomorphs in reconstructions of the paleoenvironment

8. Content

8.1 Lectures	Teaching methods	Comments
Introductory course. Generalities, applications, and importance. Terminology	Presentation, discussion, exercises	2 hours
Morphology and structure of palynomorphs		6
Palynostratigraphy		6
Applications of Palynology in Geosciences: principles, case studies		10
8.2 Seminars / laboratory classes	Teaching methods	Comments
Use of methods for processing palynological samples in the laboratory: sampling, chemical processing.	Practical work	4 hours
Morphology and structure of palinomorphs: identification of palinomorphs.	microscope study	8
Graphic processing of palynological data, with the help of specialized software	Practical work	4
Case studies prepared together with doctoral students, based on individual doctoral research topics	Presentation, discussion, exercises	8

Bibliography:

The specific bibliography for each topic is established according to the research topic of each doctoral student.
Dragastan, O., Petrescu, I., Olaru, L., 1980. Palinologie. Ed. Didactică şi Pedagogică Bucureşti.
Petrescu, I., 2003: Palinologia Terţiarului. Ed. Carpatica, Cluj-Napoca.
Tanţău I., 2006. Histoire de la végétation tardiglaciaire et holocène dans les Carpates Orientales (Roumanie). Ed. Presa Universitară Clujeană, Cluj-Napoca, 200 p.
https://earthobservatory.nasa.gov/features/Paleoclimatology_Understanding
- http://www.sci.sdsu.edu/plants/plantsystematics/pdfs/Punt_etal2006-PollenPalynology.pdf
- http://www.colby.edu/info.tech/BI211/
- http://g.willcox.pagesperso-orange.fr/archaeobotanical%20images/index1.htm
- https://climatic.inforef.be/cle_pollen/intro.htm
- http://www.pimdeklerk-palynology.eu/html/pollenphotos_ne_siberia.html

9. Aligning the contents of the discipline with the expectations of the epistemic community representatives, professional associations and standard employers operating in the program field

- The content of the discipline is consistent with that of similar disciplines at other universities in the country and abroad.

10. Examination

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Weight in the final grade
10.4 Lectures	Assessment of knowledge	Written exam	70%
10.5 Seminars / laboratory classes	Activity during seminars	Discussions, answers to questions	15%
	Assessment of knowledge	Written exam	15%
10.6 Minimum performance standard			
• Knowledge of the general principles of application of Palynology in Geosciences			

Date of issue	Signature of the teacher responsible for lectures	Signature of the teacher responsible for seminars
27.09.2021	Assoc. Prof. Dr. *habil.* Ioan Tanţău	Assoc. Prof. Dr. *habil.* Ioan Tanţău

Date of approval by the doctoral school council

Signature of the doctoral school director