STUDY PLAN, Doctoral School of Geosciences (FDI), University of Szeged (from: Sept. 2025)

Discipline: Earth Sciences
Type of education and training of doctoral program: doctoral degree (PhD)
Aim and duration of doctoral program: preparation for the PhD academic degree, 8 semesters
Funding: granted by the state (scholarship) or self-financing
Entry requirements: master's degree and successful entrance exam
End of doctoral program: credit certificate (absolutorium; completion of 240 credits)

Training/research programs and their heads of Geosciences Doctoral School

- Geoinformatics (Dr. László Mucsi, PhD habil)
- Geology (Dr. Andrea Varga Dr. Raucsikné, DSc)
- Meteorology (Dr. Tamás Gál, DSc)
- Social Geography (Prof. Dr. Zoltán Kovács, DSc)
- Physical Geography (Dr. György Sipos, PhD habil)

Compulsory progress plan – 8 semester

1. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 1, Poster 1. (conf. in Hungary, Intern. conf.), Oral presentation 1. (conf. in Hungary, Intern. conf.), Literature analysis 1.	30	**30**

2. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 2, Poster 2. (conf. in Hungary, Intern. conf.), Oral presentation 2. (conf. in Hungary, Intern. conf.), Literature analysis 2.	25	**30**
Progress report 1. (obligatory)	5	

3. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 3, Poster 3. (conf. in Hungary, Intern. conf.), Oral presentation 3. (conf. in Hungary, Int. conf.)	10	**30**
Research 1. (obligatory)	20	

4. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 4, Poster 4. (conf. in Hungary, Intern. conf.), Oral presentation 4. (conf. in Hungary, Int. conf.)	5	
Research 2. (obligatory)	20	**30**
Progress report 2. (obligatory)	5	

5. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 5, Poster 5. (conf. in Hungary, Intern. conf.), Oral presentation 5. (conf. in Hungary, Int. conf.)	10	**30**
Research 3. (obligatory)	20	

6. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 6, Poster 6. (conf. in Hungary, Intern. conf.), Oral presentation 6. (conf. in Hungary, Int. conf.)	5	
Research 4. (obligatory)	20	**30**
Progress report 3. (obligatory)	5	

7. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 7, Poster 7. (conf. in Hungary, Int. conf.), Oral presentation 7. (conf. in Hungary, Intern. conf.)	10	**30**
Research 5. (obligatory)	20	

8. semester

courses	*cr*	***all cr***
courses of educational/research programs, courses of pedagogical methodology, Education 8, Poster 8. (conf. in Hungary, Intern. conf.), Oral presentation 8. (conf. in Hungary, Int. conf.)	5	**30**
Research 6. (obligatory)	20	
Progress report 4. (obligatory)	5	

Doctoral training information:

Students must complete at least 240 credits until the finish of the doctoral study. Students must complete at least 120 credits until the end of the 4th semester.

A minimum of 20 and a maximum of 45 credits must be completed in each semester.

At the end of the first semester, it is required for the student to present a short draft of own research (in a given template format), which is evaluated and also voted by the Doctoral Council of FDI. The rejected research proposal must be resubmitted by the student after rewriting.

The courses Research 1–6, Literature analysis 1 and 2, Education 1–8, Oral presentation (in Hungary or at international conference) 1–8 and Poster (in Hungary or at international conference) 1–8 and their certification are linked to the head of the educational/research program.

The head of the Doctoral School and also the Secretary are responsible for the compulsory courses Progress Report 1–4.

Students must obtain alltogether 120 credits from obligatory courses Research 1–6. Research 1. can be taken from the 3rd semester. A total of at least 130 credits must be earned through research work; courses that can be taken into account: Research, Oral presentation (in Hungary, international conference), Poster presentation (in Hungary, international conference), Literature analysis.

Courses Literature analysis 1. and 2. can taken in the first year of doctoral study.

Students can obtain alltogether 32 credits from the courses Poster presentation (conf. in Hungary or Intern. conference), Oral presentation (conf. in Hungary or Intern. conference).

Courses in Education, Poster presentation (conf. in Hungary or Intern. conference), Oral presentation (conf. in Hungary or Intern. conference) have no prerequisites. The number in the course name indicates the number of semesters currently completed by the doctoral student in the doctoral program. During the study program, the optional courses taken one after the other are numbered in ascending order, but it is not necessarily consecutively.

PhD student must pass the Complex Exam at the end of the 4th semester. In order to be admitted to the exam, the student must have at least 90 credits and has already completed the compulsory courses (Progress report 1., Research 1.); and also has taken Progress report 2. and Research 2.

The dissertation must be submitted within 3 years after the complex exam. This 3-year period is calculated from the date of the complex exam and it is counted up to the end of the semester in question; that means for students who take their complex exam in the spring semester, the deadline is 31. August (in above mentioned 3rd year).

Courses associated with training/research programmes for informational purposes: Geoinformatics (GIS), Geology (GEO), Meteorology (MET), Social Geography (TÁR), Physical Geography (TEF). Courses marked PED indicate teaching methodology, which can be associated with either the Social Geography or the Physical Geography program, depending on the subject and the supervisor(s) choosen.

All courses are open to everyone. This is complemented by additional activities with credit value; 7 in the autumn semester and 8 in the spring semester (see below under the table).

PhD students can complete online courses (e.g. Coursera) which can be channelled into their credit certificate (absolutorium). These credits are counted separately as ‘Total transfer credits’ and will not count towards the required 240 credits.

The FDI Council determines the acceptance and credit value of courses taken at other universities during the training.

Other information: Quality Assurance Guidelines; https://u-szeged.hu/dokint/szabalyzatok/quality-assurance

Courses (credit value: 4 cr – where it's different, the corresponding credit value is indicated)

Autumn semester		
instructor	***title of the course***	***program***
Babcsányi, Izabella	*Environmental systems*	*TEF*
Bajmócy, Péter	*The geography of ethnicity and religion in the Carpathian Basin*	*TÁR*
Bajmócy, Péter	*Quantitative, qualitative and behaviorist methods in human geography*	*TÁR*
Bajmócy, Péter	*Ethnic geography, ethnic conflicts in the World*	*TÁR*
Bajmócy, Péter	*Suburbanization. Theory and regional differences*	*TÁR*
Barta, Károly	*Drought and soils*	*TEF*
Blanka-Végi, Viktória	*Water retention and wetland restoration*	*TEF*
Boros, Lajos	*Research methods in human geography*	*TÁR*
Boros, Lajos	*Urban social conflicts*	*TÁR*
Bozsó, Gábor	*Analytical technics in environmental geochemistry*	*GEO*
Gál, Tamás	*Map, figure and poster editing*	*MET*
Gál, Tamás	*Special meteorological measurement systems*	*MET*
Gál, Tamás	*GIS methods in climatology*	*MET*
Gál, Tamás	*Climate change – observations and recent changes*	*MET*
Geiger, János	*Stochastic simulations and geostatistics*	*GEO*
Geiger, János	*Scaling problems of geology*	*GEO*
Gulyás Ágnes	*Human bioclimatology*	*MET*
Gulyás, Sándor	*Application of shape analysis and geometric morphometrics in Earth Sciences*	*GEO*
Gulyás, Sándor; Geiger, János	*CT analysis in Earth Sciences: visualization, quantification*	*GEO*
Gulyás, Sándor; Geiger, János	*Quantitative methods in geology, paleoecology*	*GEO*
Hegedűs, Gábor	*Gated communities in social geography*	*TÁR*
Hegedűs, Gábor	*Geographical features of land grabbing in the World*	*TÁR*
Karancsi, Zoltán	*Geotourism (ecotourism)*	*TÁR*
Kádár, Anett	*Geographical Misconceptions: Opportunities or Obstacles in Geography Lessons?*	*PED*
Kádár, Anett	*Differentiation and competence development in Geography lessons*	*PED*
Kiss, Márton	*Modelling nature-based solutions*	*MET*
Kovács, Ferenc; Tobak, Zalán	*Environmental Informatics*	*TEF*
Kovács, Ferenc	*Geographical problems, GIS solutions*	*TEF*
Kovács, Zoltán	*Social and environmental challenges of urban development*	*TÁR*
Kovács, Zoltán	*Society and space*	*TÁR*
Kriska, Olivér	*Visualization and GIS in Human Geography*	*TÁR*
Mezősi, Gábor	*Natural hazards*	*TEF*
M. Tóth, Tivadar	*Metamorphic petrology*	*GEO*
Mucsi, László	*The use of remote sensing in Earth sciences*	*GIS*
Nagy, Erika	*The European history of urban planning*	*TÁR*
Nagy, Erika; Nagy, Gábor	*Theories in economic geography*	*TÁR*
Nagy, Gábor	*The spatial effects of economic restructuring in Eastern Central Europe*	*TÁR*
Nagy, Gábor	*Geography of housing policy and housing markets*	*TÁR*
Nagy, Gyula	*Environmental and social justice in geography*	*TÁR*
Náfrádi, Katalin	*Quaternary vegetation evolution, environmental history, geoarchaeological vegetation and climate reconstruction*	*GEO*
Pál, Viktor	*Current issues in the geography of health*	*TÁR*
Pál, Viktor	*Application of research in subject pedagogy in Geography education*	*PED*
Pál, Viktor	*Changes in the approach of the Hungarian geographical methodology*	*PED*
Raucsik, Béla	*Chapters from clay minerology*	*GEO*

Raucsikné, Varga Andrea	*Geochemical data*	*GEO*
Rácz, Lajos	*Environmental problems in historical perspectives*	*MET*
Schubert, Félix	*Microstructures*	*GEO*
Sipos, György	*Quaternary Dating Methods*	*TEF*
Sipos, György	*Fluvial Landforms and Processes*	*TEF*
Steinbach, Gábor	*Petrographic image analysis*	*GEO*
Szanyi, János	*Subsurface fluid flow systems*	*GEO*
Szatmári, Gábor	*Environmental mapping using advanced statistical approaches*	TEF
Szatmári, József	*Spatial models in Earth Sciences*	*GIS*
Szatmári, József; Kovács, Ferenc; Tobak, Zalán	*GIS Fieldwork*	*GIS*
Szemerédi, Máté	*Volcanology*	*GEO*
Szilassi, Péter	*Landscape planning*	*TEF*
Szilassi, Péter	*Analytical methods in landscape pattern research*	*TEF*
Tanács, Eszter	*Mapping of forest areas, analysis of their temporal and spatial changes using field and remote sensing methods*	*TEF*
Tobak, Zalán	*Application of GIS and Remote Sensing in Earth Sciences*	*GIS*
Spring semester		
instructor	***title of the course***	***program***
Babcsányi, Izabella	*Research methods in soil science research*	*TEF*
Bajmócy, Péter	*Population geography of Hungary*	*TÁR*
Bajmócy, Péter	*Geography of rural areas*	*TÁR*
Barta, Károly	*Field research and sampling methods*	*TEF*
Blanka-Végi, Viktória	*Microplastics in the environment*	*TEF*
Boros, Lajos	*Geography and social theory*	*TÁR*
Bozsó, Gábor	*Environmental geochemistry of saline sediments and soils*	*GEO*
Gál, Tamás	*Climatologic aspects of renewable resources*	*MET*
Gál, Tamás	*Data sources and data processing in climatology*	MET
Gál, Tamás	*Climate change and urban climatology modells*	MET
Geiger, János	*Statistical and geostatistical tools in the static geological modelling of HC-reservoirs*	*GEO*
Geiger, János	*Geostatistical modelling of uncertainty*	*GEO*
Gulyás, Ágnes	*Evaluation of urban trees*	*TEF*
Gulyás, Sándor	*Shape analysis and geometric morphometrics in Earth Sciences practice*	*GEO*
Gulyás, Sándor	*Quarternary Paleohydrology*	*GEO*
Gulyás, Sándor	*Quarternary Paleohydrology – seminar*	*GEO*
Hegedűs, Gábor	*Issues and recent trends in return migration and return migration policies*	*TÁR*
Hegedűs, Gábor	*Rural event and festival studies*	*TÁR*
Karancsi, Zoltán	*Landscape and environmental aesthetic*	*TEF*
Kádár, Anett	*Development opportunities for students' spatial orientation and map reading skills in Geography education*	*PED*
Kádár, Anett	*Design thinking in Geography education*	*PED*
Kiss, Márton	*Landscape ecology assessments*	*TEF*
Kiss, Márton	*Multi-scale assessments of ecoystem services*	*TEF*
Kovács, Attila	*Overview of domestic and international tourism climatology*	*MET*
Kovács, Ferenc	*Multispectral monitoring*	*TEF*
Kovács, Zoltán	*Society and space*	*TÁR*
Kovács, Zoltán	*Measuring socio-economic inequalities in cities*	*TÁR*
Kriska, Olivér	*Dimensions of Borders: Exploring State, Symbolic, and Social Boundaries*	*TÁR*
Makra, László	*Modelling the release and dispersion of the pollen of common ragweed*	*MET*

Makra, László	*Europe scale ragweed pollen statistics and their mapping*	*MET*
Makra, László	*Development of a ragweed pollen recognition system*	*MET*
Molnár, Gergely	*Programming issues in Atmospheric Sciences in Python*	*MET*
M. Tóth, Tivadar	*Fractured reservoirs*	*GEO*
M. Tóth, Tivadar	*Crystelline basement of the Tisza Megaunit*	*GEO*
Mucsi, László	*Measurements on field and in laboratory with remote sensing methods*	*GIS*
Nagy, Erika	*Hierarchy and territoriality: The state as an agent in socio-spatial processes*	*TÁR*
Nagy, Erika	*The organisation of the global economy II: local economy; formal and informal agency*	*TÁR*
Nagy, Erika	*The geography of retail and consumption*	*TÁR*
Nagy, Gábor	*Geography of housing policy and housing markets*	*TÁR*
Nagy, Gyula	*Urban planning and urban development*	TÁR
Náfrádi, Katalin	*Environmental History*	*GEO*
Náfrádi, Katalin	*Environmental History – seminar*	*GEO*
Pál, Viktor	*Health tourism and development policy*	*TÁR*
Pál-Molnár, Elemér	*Igneous petrology*	*GEO*
Pusztai, Bertalan	*Introduction to critical tourism studies*	*TÁR*
Raucsik, Béla	*Chapters from geology of the Apuseni Mountains*	*GEO*
Raucsikné, Varga Andrea	*Diagenesis*	*GEO*
Rácz, Lajos	*Birth of World Economy System:12th and 19th centuries*	*TÁR*
Schubert, Félix	*Paleo-fluid migration*	*GEO*
Sipos, György	*Eolian Landforms and Processes*	*TEF*
Sipos, György	*Shallow Geophysical Methods*	*TEF*
Szanyi, János	*Geothermal energy utilization*	*GEO*
Szatmári, József	*Big Data - Data mining for geoinformatics*	*GIS*
Szemerédi, Máté	*Volcanology*	*GEO*
Tanács, Eszter	*Assessment of forest ecosystem services and carbon sequestration modelling*	*TEF*
Tímár, Judit	*The geography of disadvantaged social groups*	*TÁR*
Tobak, Zalán	*Introduction to GIS*	*GIS*
Tobak, Zalán	*Remote Sensing of urban and suburban areas*	*GIS*

Additional activities for credits:

Progress report 1. (obligatory in semester 2) (5 kr) – Prof. Dr. Tivadar M. Tóth; Dr. Ferenc Kovács
Progress report 2. (obligatory in semester 4) (5 kr) – Prof. Dr. Tivadar M. Tóth; Dr. Ferenc Kovács
Progress report 3. (obligatory in semester 6) (5 kr) – Prof. Dr. Tivadar M. Tóth; Dr. Ferenc Kovács
Progress report 4. (obligatory in semester 8) (5 kr) – Prof. Dr. Tivadar M. Tóth; Dr. Ferenc Kovács

Research 1. (from Semester 3) (20 kr) – responsible tutor: head of the educational/research program
Research 2. (20 kr) – responsible tutor: head of the educational/research program
Research 3. (20 kr) – responsible tutor: head of the educational/research program
Research 4. (20 kr) – responsible tutor: head of the educational/research program
Research 5. (20 kr) – responsible tutor: head of the educational/research program
Research 6. (20 kr) – responsible tutor: head of the educational/research program

Education 1. – responsible tutor: head of the educational/research program
Education 2. – responsible tutor: head of the educational/research program
Education 3. – responsible tutor: head of the educational/research program
Education 4. – responsible tutor: head of the educational/research program
Education 5. – responsible tutor: head of the educational/research program
Education 6. – responsible tutor: head of the educational/research program
Education 7. – responsible tutor: head of the educational/research program
Education 8. – responsible tutor: head of the educational/research program

Poster – conf. in Hungary 1. (2 kr) – responsible tutor: head of the educational/research program
Poster – conf. in Hungary 2. (2 kr) – responsible tutor: head of the educational/research program

Poster – conf. in Hungary 3. (2 kr) – responsible tutor: head of the educational/research program
Poster – conf. in Hungary 4. (2 kr) – responsible tutor: head of the educational/research program
Poster – conf. in Hungary 5. (2 kr) – responsible tutor: head of the educational/research program
Poster – conf. in Hungary 6. (2 kr) – responsible tutor: head of the educational/research program
Poster – conf. in Hungary 7. (2 kr) – responsible tutor: head of the educational/research program
Poster – conf. in Hungary 8. (2 kr) – responsible tutor: head of the educational/research program

Poster – int. conf. 1. (3 kr) – responsible tutor: head of the educational/research program
Poster – int. conf. 2. (3 kr) – responsible tutor: head of the educational/research program
Poster – int. conf. 3. (3 kr) – responsible tutor: head of the educational/research program
Poster – int. conf. 4. (3 kr) – responsible tutor: head of the educational/research program
Poster – int. conf. 5. (3 kr) – responsible tutor: head of the educational/research program
Poster – int. conf. 6. (3 kr) – responsible tutor: head of the educational/research program
Poster – int. conf. 7. (3 kr) – responsible tutor: head of the educational/research program
Poster – int. conf. 8. (3 kr) – responsible tutor: head of the educational/research program

Oral presentation – conf. in Hungary 1. – responsible tutor: head of the educational/research program
Oral presentation – conf. in Hungary 2. – responsible tutor: head of the educational/research program
Oral presentation – conf. in Hungary 3. – responsible tutor: head of the educational/research program
Oral presentation – conf. in Hungary 4. – responsible tutor: head of the educational/research program
Oral presentation – conf. in Hungary 5. – responsible tutor: head of the educational/research program
Oral presentation – conf. in Hungary 6. – responsible tutor: head of the educational/research program
Oral presentation – conf. in Hungary 7. – responsible tutor: head of the educational/research program
Oral presentation – conf. in Hungary 8. – responsible tutor: head of the educational/research program

Oral presentation – int. conf. 1. (6 kr) – responsible tutor: head of the educational/research program
Oral presentation – int. conf. 2. (6 kr) – responsible tutor: head of the educational/research program
Oral presentation – int. conf. 3. (6 kr) – responsible tutor: head of the educational/research program
Oral presentation – int. conf. 4. (6 kr) – responsible tutor: head of the educational/research program
Oral presentation – int. conf. 5. (6 kr) – responsible tutor: head of the educational/research program
Oral presentation – int. conf. 6. (6 kr) – responsible tutor: head of the educational/research program
Oral presentation – int. conf. 7. (6 kr) – responsible tutor: head of the educational/research program
Oral presentation – int. conf. 8. (6 kr) – responsible tutor: head of the educational/research program

Literature analysis 1 (only in the 1st semester of the programme) (5 kr) – responsible tutor: head of the educational/research program
Literature analysis 2 (only in the 2nd semester of the programme) (5 kr) – responsible tutor: head of the educational/research program