THE DOCTORAL TRAINING PROGRAMME OF THE DOCTORAL SCHOOL OF ENVIRONMENTAL SCIENCES

The doctoral training programme of the Doctoral School of Environmental Sciences is based on the regulations governing doctoral training programmes and the awarding of doctoral degrees. For basic information, please visit the website of the University of Szeged:

https://u-szeged.hu/doctoral/regulations/regulations-governing-250318

https://sci.u-szeged.hu/english/doctoral-students/operating-rules

https://sci.u-szeged.hu/english/doctoral-students

https://sci.u-szeged.hu/doktoranduszoknak/ugyintezes , https://sci.u-szeged.hu/english/doctoral-students

1. Admission procedure, selection of excellent candidates

The general requirements of the entrance examination are contained in points 14-27 of the SZTE "Doctoral training and doctoral degree acquisition regulations of the University of Szeged" (Doctoral training and doctoral degree acquisition regulations – 2025.01.27. https://u-szeged.hu/szabalyzatok/doktori-kepzes-doktori-250128). The KTDI has established the admission rules in accordance with this. The admission procedure begins with the University of Szeged and the SZTE TTIK advertising admissions for doctoral studies in various media and at various higher education institutions. Applications for research topics announced by doctoral schools can be submitted uniformly until May 15. For additional admission procedures, the deadline is August 20. For cross-semesters, the deadline is December 31 in the SZTE Dream Apply system. Electronic applications begin one month before the deadline. Students can only apply for topics announced by KTDI on the National Doctoral Council's website (https://doktori.hu). The head and administrator of the DI have access rights to view the application form and uploaded data. The admission requirements, admission process, and calculation of admission points are carried out according to the operating rules of the Doctoral Council of Natural and Technical Sciences of the University of Szeged (https://sci.u-szeged.hu/english/doctoral-students/operating-rules and Annex 1).

Students take an oral exam before an admissions committee of at least three members appointed by KTDIT. In the case of foreign applicants, an online entrance exam is permitted. The members

of the Admissions Committee are appointed by the head of the doctoral school; members may be the heads of the training/research programs or their representatives, as well as the administrator of the doctoral school. KTDIT makes a proposal for the date and place of the exam, and assigns the topic areas for each student, which are related to the training/research program chosen by the applicant, the chosen research topic, and the themes of the most important basic subjects taught in environmental science programs. The applicant receives the topic areas and the date from the committee at least 2 weeks before the exam. The primary purpose of the oral examination is to clarify whether the applicant has sufficient professional knowledge to meet the requirements of the training.

The committee will aggregate the points of the oral examination with the applicant's other points in the manner prescribed in the regulations of the Doctoral Council of Natural and Technical Sciences (https://sci.u-szeged.hu/english/doctoral-students/operating-rules and Annex 1). The admissions committee will rank the applicants based on the aggregated points. The scoring system is uniform at the TTIK. A detailed description of the scoring system is contained in Annex 1. Taking into account the points obtained during the admission procedure, the admissions committee of the Doctoral School will make a proposal for students recommended for admission in the given admission period. After approval by the KTDIT, the proposal is forwarded to the Dean's Office of the TTIK. In the case of applicants for fee-reimbursed places or with scholarships from external bodies and institutions, the task is only to assess suitability.

2. Course of doctoral studies

First-year students are welcomed by the head of the Doctoral School at the beginning of their studies. He/she explains the structure of the Doctoral School, the structure of the educational and research programs, the expectations, the study and examination schedule, and the procedure for obtaining a degree. He/she presents the documents containing the above in full detail and their availability. By a given deadline each semester, students select the courses they wish to take in the semester after consulting with their supervisors and the instructors of the courses listed in the KTDI course list (Annex 2). The KTDI administrator ensures that the courses are announced. At the end of each semester, students prepare a written report on their work, which the supervisor also reviews and the student uploads to the appropriate Coospace interface. The reports are reviewed every semester by the Doctoral School Council.

3. Study and examination schedule of the Doctoral School

The School's lecturers or, if requested, domestic or foreign cooperating partners announce doctoral courses for each semester. The courses are announced taking into account the students' research fields. During the organized training period, each student must complete at least 5 courses from among the courses developed by the School's lecturers, as listed in Annex 2. The list can be expanded with new courses, and the modernization of the topics is a continuous task. The list can be expanded with new courses, and the modernization of the topics is a continuous task. The introduction of new courses can be requested by the lecturer in prior consultation with the program manager, and their approval is the responsibility of KTDIT. **All courses accepted by the Doctoral School of Environmental Sciences are announced in Neptun with a KTDIT code.**

4. Rules of the PhD program

At the Doctoral School, a credit system that conforms to the higher-level regulations ensures that the principle of unity is met.

4.1. In doctoral education, all study requirements are defined in credits. The grading of the examination shall be on a 3-level or 5-level grading scale.

4.2. The duration of the doctoral studies is 2+2 years, divided into 8 semesters. In the first two years, students take courses, conduct research, and collect a minimum amount. 120 credits. At the end of this part, there is a so-called complex examination. If the complex examination is successful, the student can enter the next two years. In this part, there are no courses; only research work is required. Typically, at the end of this period, the dissertation should be completed, and the defense process can begin. During the 48-month-long training period, divided into eight examination periods, a total of 240 credit points must be earned to be eligible for a completion of studies certificate.

4.3. At least 20 credit points shall be collected during each examination period. This can be completed each semester by completing the labwork course. Completing the labwork course is mandatory each semester.

4.4. If a student participates in a partial study at a foreign or other Hungarian university, the relevant Doctoral School Council may grant an exemption from the requirements mentioned above. The credit point value of the courses that have been completed at a foreign or other Hungarian university shall be judged by the relevant Doctoral School Council.

4.5. The credit point value of the theoretical course with two lessons per week (14 weeks/semester) is 3 points. The credit point value shall change in proportion to the change in the total number of lessons, i.e., taking an intensive course with an external lecturer. At least **15** credit points shall be achieved from the theoretical courses, which means that a minimum of 5 courses (2 h /week, 5-level grading scale) have to be completed during the first period (1-4 Semester) of the PhD study (this is one of the criteria for taking the exam). In the second part of the PhD study (dissertation period, 5-8 semesters), there are no theoretical courses; only research work must be done.

4.6. PhD students have to choose theoretical courses (Annex 2) in the following way:

a) Minimum 9 credits (3 theoretical courses) must be taken from courses offered by Phd student's discipline, from the block of the Program in which the student is studying
The courses are grouped into the following blocks by training program

Environmental Biology (*leader: Zoltán Bátoir) - courses of Environmental Biochemistry and biotechnology, Conservation Ecology*

Environmental Earth Sciences (*leader: Elemér Pál-Molnár) - courses of Environmental Geography and Environmental Geology)*

Environmental Chemistry (leader: Zoltán Kónya) – *courses of Environmental Chemistry*

Environmental Physics (leader: Zoltán Bozóki) - *courses of Environmental Physics*

Environmental Technology (leader: Cecília Hodúr) - *courses of Environmental and food safety, and courses of Environmental Chemistry*

b) Minimum 6 credits (2 theoretical courses) can be taken from any courses offered by the Doctoral School of Environmental Sciences or other Phd courses provided by the Doctoral Schools of Biology, Physics, Chemistry, and Earth Sciences of the University of Szeged.

c) The credit point value of the courses that have been completed at a foreign or other Hungarian university shall be judged by the relevant Doctoral School Council.

4.7. The number of credits that can be collected by an educational activity depends on the number of hours of teaching activity:

1 h/week: 2 credits.

2 h/week: 4 credits.

3 h/week: 6 credits.

4 h/week: 8 credits.

A total of 48 credits and a maximum of 8 credits per semester can be obtained via educational activities.

4.8. With research work such as bibliography, library and archives research, follow-up on journal articles, conference participation –where the student presents a poster or holds a lecture –and publishing articles in journals, a total of at least 130 credit points shall be achieved:

Labwork (20 credits, 20 h/week): research work related to the PhD topic of the PhD student, bibliography, library, and archives research, and follow-up on journal articles.

Working report (4 credits): The doctoral student may report on their research work at a department or research group seminar. A maximum of 4 reports can be evaluated with credit.

Conference presentation (poster or oral) A doctoral student may receive credit for their active conference presentations (posters), provided that they appear in the conference publication. The number of credits is as follows:

	Hungarian (local conf., official language is Hungarian))	International (official language is English)
poster	1 credit	2 credits

oral	3 credits	5 credits

Publication (5 credits): Doctoral students shall earn credit points for publishing international journal articles.

The doctoral student must be a co-author of at least two publications related to the topic of the PhD dissertation, published in international scientific journals referenced by the SCI (Science Citation Index). In one of the papers, the student has to be the first author. If the applicant is not the first author, the corresponding author must declare the student's contribution to the publication. If the dissertation topic covers R&D activity, one publication is required.

Summer School (3 credits): The doctoral student may attend a summer university or summer school related to the topic of their dissertation. The program leader decides whether to approve the given summer school.

Study abroad – short (3 credits) The doctoral student may take a brief study trip abroad (min. 2 weeks - max. 1 month) related to the topic of the dissertation. Verification of the study visit must be provided by the supervisor, while acceptance is given by the program manager.

Study abroad – long (5 credits): The doctoral student may take a short study trip abroad (minimum of one month to a maximum of two months) related to the topic of the dissertation. Verification of the study visit must be provided by the supervisor, while acceptance is given by the program manager.

Recommended courses/credits for the entire duration of the training:

training and research periode	1st semester	Labwork 1 (20 cr) Theoretical courses 1. (3 credits) Individual courses*, Education (~4 - 6 credits)	27 - 29 credits
	2nd semester	Labwork 2 (20 cr) Theoretical courses 2 and 3. (6 credits) Individual courses*, Education (~5 - 6 credits)	31 - 32 credits
	3rd semester	Labwork 3 (20 cr) Theoretical courses 4 and 5. (6 credits) Individual courses*, Education (~6 - 7 credits)	32 - 33 credits
	4th semester	Labwork 4 (20 cr) Individual courses*, Education (~10-12 credits)	30 - 32 credits
		Complex Exam The requirement of the Complex Exam: • 15 credit points from the theoretical courses (4.6.) • 120 credits collected by the end of the 4th semester	
research and dissertation periode	5th semester	Labwork 5 (20 kr) Individual courses*, Education (~10-12 credits)	30 - 32 credits
	6th semester	Labwork 6 (20 kr) Individual courses*, Education (~10-12 credits)	30 - 32 credits
	7th semester	Labwork7 (20 kr) Individual courses*, Education (~10-12 credits)	30 - 32 credits
	8th semester	Labwork 8 (20 kr) Individual courses*, Education (~10-12 credits)	30 - 32 credits
			Total: min 240 credits (requirement of the absolutorium**)**

** working report, Conference participation, Publication, Book chapter, Summer School, Coursera Course, etc.*

5. Complex exam / comprehensive examination

All students admitted after 2016 are required to take a Complex Exam at the end of the 4th semester. The prerequisites of the Complex Exam :

- 15 credit points from the theoretical courses (4.6.)
- 120 credits collected by the end of the 4th semester

This exam has two parts. The first part encompasses a regular exam from two subjects (major and minor questions). In the second part, the student summarizes the research achievements already completed and outlines the work planned for the next two years.

Chapter V of the University of Szeged's regulations on doctoral studies contains detailed information about the organization of the comprehensive exam. The study part of the failed complex exam can be repeated once in the same exam period. The section on research advancement cannot be repeated. If the exam is unsuccessful, the PhD training will be terminated.

6. Knowledge of foreign languages

The requirement for PhD admission is the B2 level of the English language exam. The Doctoral School has no other language requirements for obtaining the doctoral degree.

7. Dissertation

The dissertation is written in either Hungarian or English. The dissertation should be descriptive and range in length from 75 to 100 pages. It shall contain the background and motivation of the research, together with the description of the experimental methods used during the work. It shall include a detailed results and discussion section, which presents the key findings of the doctoral research. The Dissertation and the Booklet of Thesis Points must be uploaded to the University Repository. **Before** submitting the Dissertation, the applicant has to present the thesis to an expert audience (Home Defense). This can be either the Department where the research work was carried out or the relevant body of the Hungarian Academy of Sciences. The audience must provide a written supportive opinion stating that the content of the Dissertation is suitable for submission (Annex 3). The supervisor must also declare in writing that the applicant is capable of receiving a scientific degree. A booklet of Thesis points has to contain the aims, the experimental, and the most important outcomes, summarized in bullet points. The booklet should be 10-15 pages in length. All relevant publications and the applicant's relevant conference presentations must be listed. The IF values must be displayed, and they should be summarized. The cover page shall contain the applicant's name, the supervisor's name, and the doctoral school's name. The co-author statement (Annex 4) must be a part of the Booklet of Thesis Points.

8. Programs of the Doctoral School of Environmental Sciences:

Environmental Biology (*leader:* Zoltán Bátori*)*

Environmental Earth Sciences (*leader:* Elemér Pál-Molnár*)*

Environmental Chemistry (leader: Zoltán Kónya)

Environmental Physics (leader: Zoltán Bozóki)

Environmental Engineering Program (leader: Cecília Hodúr)

The actual research topics of the Doctoral School can be found on the official webpage of the Doctoral Council (https://doktori.hu/doktori-kepzes/doktori-iskolak/152-doctoral-school-of-environmental-sciences).

Annex 1. Calculation of admission points

Academic results:

For graduates who graduated no more than 3 years ago (max. 25 points)
(BSc degree average – 3.5) · 20/3
(MSc degree average – 3.5) · 10
(university degree average – 3.5) · 50/3
- For graduates more than 3 years ago (max. 20 points)
(BSc degree average – 3.5) · 16/3
(MSc diploma average – 3.5) · 8
(university diploma average – 3.5) · 40/3
The results must be rounded to whole numbers according to the rounding rule.

Scientific results:

- For graduates who graduated less than 3 years ago (max. 25 points)
- For graduates who graduated more than 3 years ago (max. 30 points)

Detailed scoring of scientific results:
- 12 points are awarded to those who achieve 1st-3rd place at the OTDK conference or receive a special award.
- 5 points are awarded, up to a maximum of 10, for submitting material to a TDK conference
- 5 points are awarded, up to a maximum of 10, for being a co-author of a presentation or poster at a prestigious international conference, or for presenting at a domestic conference
- 12 points are awarded for each presentation given at a prestigious international conference
- 10 points are awarded, up to a maximum of 20, for co-authoring a paper published in a journal with an impact factor
- 5 points, but a maximum of 10 points, if you are a co-author of a paper published in a journal without an impact factor

Oral Entrance Exam:

Admission interview in the presence of a committee of at least three members, on pre-determined topics (max. 30 points).

Language proficiency:

Performance beyond the language exam required for graduation can be scored in English, French, German, Italian, Spanish, or Russian (max. 5 points). Advanced C 5 points, intermediate C 3 points, advanced A or B 3 points, intermediate A or B 2 points

Annex 2 – THE THEORETICAL COURSES OF THE DOCTORAL SCHOOL OF ENVIRONMENTAL SCIENCES

THE THEORETICAL COURSES OF THE DOCTORAL SCHOOL OF ENVIRONMENTAL SCIENCES
KÖRNYEZETTUDOMÁNYI DOKTORI ISKOLA KURZUSAI

	Tárgy	Előadó	Tanszék	kredit	óra/hét
Környezeti biokémia és biotechnológia blokk / Environmental biochemistry and biotechnology					
	Biotechnológia alapjai I. Basic Biotechnology I.	Kovács Kornél	Biotechnológia Tanszék	3	2
	Biotechnológia alapjai II. Basic Biotechnology II.	Rákhely Gábor-	Biotechnológia Tanszék	3	2
	Válogatott fejezetek a molekuláris biotechnológiából Molecular Biotechnology	Tóth András	Biotechnológia Tanszék	3	2
	Biokémia alapjai Basic Biochemistry	Hermesz Edit Kotormán Márta	Biokémia Tanszék	3	2
	Biokémia kémikusoknak Biochemistry for Chemists	Kiricsi Mónika	Biokémia Tanszék	3	2
	Hulladékkezelési biotechnológia doktoranduszoknak Biotechnology of Waste treatment	Perei Katalin	Biotechnológia Tanszék	3	2
	Borászati biotechnológia Biotechnology of winery	Tóth András	Biotechnológia Tanszék	3	2
	Cianobaktériumok bio-technológiai hasznosítása Application of Cyanobacteria in Biotechnolgy	Gombos Zoltán	Biotechnológia Tanszék - SZBK	3	2
	Biológiai nitrátmentesítés Nitrate Removal by Biotechnology	Kiss István	Biotechnológia Tanszék	3	2
	Biotechnológia üzleti szemmel Biotechnology in business	Ifj. Duda Ernő	Biotechnológia Tanszék	3	2
	Fehérje-szerkezet vizsgálat korszerű módszerei Methods for investigation of Protein structures	Borics Attila	Biokémia Tanszék	3	2
	Környezeti stresszbiokémia Environmental Stress Biology	Hermesz Edit	Biokémia Tanszék	3	2
	Stresszbiokémia Stress Biology	Hermesz Edit	Biokémia Tanszék	3	2
	Differenciált Biokémia Advanced Biochemistry	Hermesz Edit Kotormán Márta	Biokémia Tanszék	3	2
	A MATLAB programcsomag alkalmazása kísérleti adatok kiértékelésére, oktató Groma Géza MATLAB	Groma Géza	Biokémia Tanszék	3	2
Természetvédelmi ökológia blokk / Conservation Ecology					
	Populációbiológia Population biology	Pénzes Zsolt	Ökológia Tanszék	3	2
	Természetvédelmi biológia Conservation biology	Bátori Zoltán	Ökológia Tanszék	3	2
	Viselkedésökológia Behavioral ecology	Maák István	Ökológia Tanszék	3	2

	Elemi kölcsönhatások és közösségek ökológiája Elementary interactions and the ecology of communities	Torma Attila	Ökológia Tanszék	3	2
	Filogenetika Phylogenetics	Pénzes Zsolt	Ökológia Tanszék	3	2
	Növénycönológia Phytosociology .	Tölgyesi Csaba	Tanszék	3	2
	Populációgenetika Population genetics	Pénzes Zsolt	Ökológia Tanszék	3	2
	Entomológia Entomology	Torma Attila	Ökológia Tanszék	3	2
	Molekuláris Ökológia Molecular ecology	Pénzes Zsolt	Ökológia Tanszék	3	2
Környezeti geográfia blokk / Environmental Geography					
	Természetföldrajz Physical Geography		Term. Földr. Geoinf.	3	2
	Globális környezeti kérdések Global Envinronmental Problems	Rakonczai János	Term. Földr. Geoinf.	3	2
	Talajtan Pedology		Term. Földr. Geoinf.	3	2
	A globális környezeti változások hazai következményei Impacts and consequences of Global Environmental Changes in Hungary	Rakonczai János	Term. Földr. Geoinf.	3	2
	Környezeti monitoring Environmental monitoring		Term. Földr. Geoinf.	3	2
	Földrajzi információs rendszerek alapjai Introduction to Geographical Information Systems	Mucsi László	Term. Földr. Geoinf.	3	2
	Geomorfológia Geomorphology		Term. Földr. Geoinf.	3	2
	Városökológia Urban ecology	Mucsi László	Term. Földr. Geoinf.	3	2
	Városklimatológia Urban climate	Unger János	Éghajlatt. Tájföldrajz	3	2
	Tájökológia Landscape ecology	Gulyás Ágnes Takács Eszter	Éghajlatt. Tájföldrajz	3	2
	Geofizikai módszerek a környezetállapot értékelésben Geophysical methods in the evaluation of the environment		Term. Földr. Geoinf.	3	2
	Talaj és talajvízvédelem Soil and groundwater protection	Farsang Andrea	Term. Földr. Geoinf.	3	2
	Térbeli modellek alkalmazása a földtudományokban Spatial models in earth sciences	Szatmári József	Term. Földr. Geoinf.	3	2
	Big data - Adatbányászati technológiák a geoinformatikában Big Data - Data mining for geoinformatics	Szatmári József	Term. Földr. Geoinf.	3	2
	Geoinformatikai modellezés GIS modelling	Szatmári József	Term. Földr. Geoinf.	3	2
	Magyarország környezeti állapota Environmental conditions of Hungary	Ladányi Zsuzsanna	Term. Földr. Geoinf.	3	2
	Geoinformatikai adatbázisok	Kovács Ferenc	Term. Földr. Geoinf.	5	4

	GIS databases				
	Talajeróziós modellezés Soil erosion modelling	Barta Károly	Term. Földr. Geoinf.	3	2
	Application of GIS and RS in Earth Sciences	Tobak Zalán, Boudewijn van Leeuwen	Term. Földr. Geoinf.	3	2
	Aszály talajtani vonatkozásai Drought and soils	Barta Károly	Term. Földrajz .Geoinf.	3	2
	Landscape Planning (Tájtervezés)	Szilassi Péter	Term. Földrajz .Geoinf.	3	2
	Environmental Risk Assessment (Környezeti kockázatértékelés)		Term. Földrajz .Geoinf.	3	2
	Természeti veszélyek Natural Hazards	Mezősi Gábor	Term. Földrajz .Geoinf.	3	2
Környezetföldtan blokk / Environmental Geology					
	Fejezetek ásványtanból Topics in Mineralogy	Pál-Molnár Elemér	Ásvány Kőzet. Geok. Tsz	3	2
	Fejezetek kőzettanból Topics in Petrology	M. Tóth Tivadar	Ásvány Kőzet. Geok. Tsz	3	2
	Fejezetek szedimentológiából Topics in Sedimentology	Geiger János	Földtan, Őslénytan Tsz	3	2
	Térbeli és tér-időbeli monitoring rendszerek utólagos mintázásának tervezése és monitoring adatok értékelése geostatisztikai módszerekkel Secondary sampling and geostatistical analysis of spatio-temporal monitoring systems	Geiger János	Földtan, Őslénytan Tsz	3	2
	Általános földtan General Geology	Sümegi Pál	Földtan, Őslénytan Tsz	3	2
	Környezetföldtan Environmental Geology	M. Tóth Tivadar Sümegi Pál	Ásvány Kőzet. Geok. Tsz	3	2
	Környezeti geokémia Environmantal Geochemistry	Hetényi Magdolna	Ásvány Kőzet. Geok. Tsz	3	2
	Alkalmazott paleoökológia Applied Palaeoecology	Sümegi Pál	Földtan, Őslénytan Tsz	3	2
	Ásvány-kőzettan Mineralogy and Petrology	Pál-Molnár Elemér M. Tóth Tivadar	Ásvány Kőzet. Geok. Tsz	3	2
	Magyarország földtana Geology of Hungary	Sümegi Pál Raucsik Béla	Földtan, Őslénytan Tsz	3	2
	Alkalmazott környezetföldtan Applied Environmental Geology	M. Tóth Tivadar Sümegi Pál	Ásvány Kőzet. Geok. Tsz	3	2
	Környezetföldtani labor-, és terepvizsgálati módszerek Laboratory and Field Methods in Environmental Geology	Bozsó Gábor Sümegi Pál	Ásvány Kőzet. Geok. Tsz	3	2
	Környezeti Geokémia Environmental Geochemistry	Hetényi Magdolna	Ásvány Kőzet. Geok. Tsz	3	2
	Sziliciklasztos kőzetek kőzettani és geokémiai vizsgálata Petrography and Geochemistry of Siliciclastic Rocks	Raucsikné Varga Andrea	Ásvány Kőzet. Geok. Tsz	3	2
	Víz-kőzet kölcsönhatások/diagenezis Water-Rock Interactions/Diagenesis	Raucsikné Varga Andrea	Ásvány Kőzet. Geok. Tsz	3	2
	Hidrogeológia Hydrogeology	Szanyi János	Ásvány Kőzet. Geok. Tsz	3	2

	Hidrodinamikai- és transzportmodellezés Numerical modelling	Szanyi János és Kovács Balázs	Ásvány Kőzet. Geok. Tsz	3	2
	Fejezetek az agyagásványtanból Topics in Clay Mineralogy	Raucsik Béla	Ásvány Kőzet. Geok. Tsz	3	2
	Alkalmazott izotóp-geokémia Applied Isotope Geochemistry	Raucsikné Varga Andrea és Raucsik Béla	Ásvány Kőzet. Geok. Tsz	3	2
	Földtani térképezés és szelvény szerkesztés Geological mapping	Geiger János M. Tóth Tivadar	Földtan, Őslénytan Tsz	3	2
	Alkalmazott geomatematika és geostatisztika Applied Geomathematics and Geostatistics	Geiger János M. Tóth Tivadar	Földtan, Őslénytan Tsz	3	2
	A hulladék elhelyezés földtani alapjai Geological fundamentals of waste deposition	Sümegi Pál M. Tóth Tivadar	Földtan, Őslénytan Tsz	3	2
	A természetvédelem földtani alapjai Geological fundamentals of environmental protection	Sümegi Pál	Földtan, Őslénytan Tsz	3	2
	Környezeti ásványtan Enviromental Mineralogy	Pál-Molnár Elemér Bozsó Gábor	Ásvány Kőzet. Geok. Tsz	3	2
	Szervesanyag a talajban és a recens üledékekben Organic Matter in Soils and Recent Sediments	Hetényi Magdolna	Ásvány Kőzet. Geok. Tsz	3	2
	Repedezett rezervoárok Numerical modelling of fractured fluid reservoirs	M. Tóth Tivadar	Ásvány Kőzet. Geok. Tsz	3	2
Környezeti Kémia Blokk / Environmental Chemistry					
	Környezeti kémia Environmental Chemistry	Kónya Zoltán Tóth Ildikó	Szerv. és Anal. Kém. Tsz	3	2
	Hulladékkezelés, - gazdálkodás Waste treatment and Waste management	Kozma Gábor Sápi András	Alk. és Körny. Kémia Tsz	3	2
	Környezeti kolloidika Environmental Colloid Chemistry	Tombácz Etelka	MK Élelmiszermérnöki Intézet	3	2
	Atomspektroszkópia Atomic Spectroscopy	Galbács Gábor	Szerv. és Anal. Kém Tsz	3	2
	Nagyhatékonyságú oxidációs eljárások a környezetvédelemben Advanced Oxidation Processes for Environmental Protection	Alapi Tünde	Szerv. és Anal. Kém Tsz	3	2
	Biomérnöki műveletek Bioengineering Operations	Hodúr Cecília	MK Élelmiszerip. Műv. és Környezett.	3	2
	Membránszeparációs eljárások Membran Separation Processes	Hodúr Cecília	MK Élelmiszerip. Műv. és Környezett	3	2
	Környezetvédelmi technika Environmental Techniques	László Zsuzsanna	MK Élelmiszerip. Műv. és Környezett	3	2
	Környezetvédelmi technológia Technology of Environmental Protection	Kozma Gábor Sápi András	Alk. Körny. Kémia Tsz	3	2
	Zeolitok, mikro és mezopórusos anyagok kémiája Chemistry of Zeolits and Mesoporous Materials		Alk. Körny. Kémia Tsz	3	2
	Modern vízkezelési eljárások Advanced Water Treatments	Tóth Ildikó	Alk. Körny. Kémia Tsz	3	2
	Alternatív energiaforrások	Hannus István	Alk. Körny. Kémia Tsz	3	2

	Alternative energy sources				
	Nanotechnológia a környezetvédelemben Nanotechnology for Environmental Protection	Kónya Zoltán	Alk. Körny. Kémia Tsz	3	2
	Levegőtisztaság-védelem Air pollution, air protection	Kozma Gábor Sápi András	Alk. Körny. Kémia Tsz	3	2
	Határfelületi egyensúlyok és diszperzió stabilitás vizes közegben Equilibrium on interface and colloid stability of dispersions in aqueous medium	Tombácz Etelka	MK Élelmiszermérnöki Intézet	3	2
	Felületkémia és heterogén katalízis 1. Surface Chemistry and heterogeneous catalysis 1.	Dékány Imre, Erdőhelyi András, Kiss János	Alk. Körny. Kémia Tsz	3	2
	Felületkémia és heterogén katalízis 2. Surface Chemistry and heterogeneous catalysis 2.	Dékány Imre, Erdőhelyi András, Kiss János	Alk. Körny. Kémia Tsz	3	2
	Szelektív hulladékkezelési technológiák Advanced technologies of waste treatment	Kukovecz Ákos	Alk. Körny. Kémia Tsz	3	2
	Case studies in Industrial catalysis	Kukovecz Ákos	Alk. Körny. Kémia Tsz	3	2
Környezet és Élelmiszerbiztonság blokk / Environmental- and food safety					
	Élelmiszer-biztonság Food safety	Dr. Vidács Anita	Élelmiszermérnöki Intézet	3	2
	Csomagolás innováció – élelmiszer-biztonság és fenntarthatóság Packaging innovation – food safety and sustainability	Dr. Gyimes Ernő János	Élelmiszermérnöki Intézet	3	2
	Általános élelmiszer-technológiák doktoranduszoknak General Food Technologies for PhD Students	Szabó Pál Balázs Dr.	Élelmiszermérnöki Intézet	3	2
	Élelmiszeripari innovációk szabályozása Regulation of food industry innovations	Bánáti Diána Dr.	Élelmiszermérnöki Intézet	3	2
	Élelmiszerek jelölése doktoranduszoknak Food labeling for doctoral students	Bánáti Diána Dr.	Élelmiszermérnöki Intézet	3	2
	Pandémiák és élelmiszer-biztonság Pandemics and food safety	Bánáti Diána Dr.	Élelmiszermérnöki Intézet	3	2
	Élelmiszer-biztonság felsőfokon Food safety - advanced	Bánáti Diána Dr.	Élelmiszermérnöki Intézet	3	2
	Toxikológia doktoranduszoknak Toxicology for PhD students	Dr. Szepesi-Bencsik Dóra	Élelmiszermérnöki Intézet	3	2
	Az akrilamid élelmiszer-biztonsági jelentősége The food safety significance of acrylamide	Szigeti Tamás János Dr.	Élelmiszermérnöki Intézet	3	2
Környezeti Fizika blokk					
	Alkalmazott optika Applied Optics	Erdélyi Miklós	Optika és Kvantume. Tsz	3	2
	Biofizika Biophysics	Maróti Péter	Biofizika Tanszék	3	2
	Tudományos közlés és tudománymetria Scientific Communication	Szörényi Tamás	Optika és Kvantume. Tsz	3	2
	Fotoakusztikus spektroszkópia Photoacoustic Spectroscopy	Bozóki Zoltán	Optika és Kvantumech. Tsz	3	2
	Virtuális méréstechnika Technology of Virtual Measurements	Mingesz Róbert	Kísérleti Fizika Tsz	3	2
	Geofizikai folyadékdinamika	Bozóki Zoltán	Optika és Kvantume. Tsz	3	2

	Geophysical fluid dynamics				
	Microphysics and chemistry of clouds / Mikrofizikai és kémiai folyamatok felhőkben	Szakáll Miklós	Optika és Kvantume. Tsz	3	2
	Légköri aeroszolok környezetfizikája/ Environmetal Physics of aerosols in atmosphere	Ajtai Tibor	Optika és Kvantume. Tsz	3	2
Mindenkinek ajánlott kurzus / course for everyone					
	Környezeti ártalmak biomarkerei Biomarkers of environmental hazards	Papp András	ÁOK, Népegészségtani Intézet	3	2
	Környezeti xenobiotikumok által okozott megbetegedések Helth problems caused by xenobioticums	Nagymajtényi László	ÁOK, Népegészségtani Intézet	3	2
	Minőségbiztosítás Quality Protection	Lászlóné Dr. Gálfi Márta	Környezet-biol. és Körny. Nevelés Tsz. (JGYPK)	3	2
	Életciklus elemzés Life-cycle Analysis	Lászlóné Dr. Gálfi Márta	Környezet-biol. és Körny. Nevelés Tsz. (JGYPK)	3	2
	Mérési eredmények feldolgozása LabVIEW-ban LabVIEW for analysis of the measuremets	Tátrai Dávid	Optika és Kvantume. Tsz	3	2
	Összetett architektúrák LabVIEW-ban Complex architectures in LabVIEW	Tátrai Dávid	Optika és Kvantume. Tsz	3	2

Annex 3 Home defense - (official language of the document is Hungarian)

A HÁZI DOKTORI VÉDÉSI ELJÁRÁS JEGYZŐKÖNYVE

A doktorjelölt neve: ……

Neptun azonosító: …….

Születési hely, év, hó, nap: ……..

Levelezési címe: ……

Az értekezés címe (témaköre):
……

Bíráló neve, munkahelye:

1. ……
2. ……

A házi doktori védés időpontja:

.....
A házi doktori védés helye:

.....

Bíráló(k) javaslata:

1. “védésre javasolt” “védésre nem javasolt” (aláírás)

2. “védésre javasolt” “védésre nem javasolt” (aláírás)

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Jelölt Témavezető(k)

Szeged, …….

Annex 4.

Co-author statement in connection with the submission of a PhD thesis

With reference to the Regulations of the Environmental Science Doctoral School of the University of Szeged, statement from the Author in charge about the *……PhD student's……* contribution in the shared work, which is already published and included in the PhD thesis of the applicant *(……..paper's detailed information…….)*, must be presented to the PhD Committee.

The Author in charge states that the published work, or the indicated part of the work, has not been and will not be used in other PhD thesis.

date, signature