DOCUMENT

Study programme	MB-DoD15 - Molecular Biology
Study	Grade of study - III. - doctoral, study form - full time, study type - Single degree study
Document type:	Description of the study programme
The name of the university	University of Ss. Cyril and Methodius in Trnava
The seat of the university	Nám. J. Herdu 2, 91701 Trnava
The name of the faculty	Faculty of Natural Sciences
The seat of the faculty	Nám. J. Herdu 2, 91701 Trnava

Institution body for approving the study programme:

The Board for Internal System of Quality Assurance at UCM

Date of the study programme approval or the study programme modification:

21.08.2013

Date of the latest change in the study programme description:

02.06.2016

Reference to the assessment report of the application for accreditation of the study programme under § 30 of Act no. 269/2018 Coll.:

programme under § 30 of Act no. 269/2018 Coll

1. - Basic information about the study programme

a) - Name of the study program and its number according to the register of study programmes.

Molecular biology 100717

b) - Degree of higher education and ISCED-F education degree code.

1 S 864

c) - Place(s) of delivery of the study programme.

Trnava

d) - Name and number of the field of study in which higher education is obtained by completing the study programme, or a combination of two fields of study in which higher education is obtained by completing the study programme, ISCED-F codes of the field/fields.

Biology - 0511

e) - Type of the study programme: academically oriented, professionally oriented; translation, translation combination study programme (listing the specializations); teaching, teaching combination study programme (listing the specializations); artistic, engineering, doctoral, preparation for regulated profession, joint study programme, interdisciplinary studies.

Academic-oriented learning

Awarded academic degree after the name

PhD.

g) - Form of study.

full time

i) - Language or languages in which the study programme is delivered.

English language Slovak language

j) - Standard length of the study expressed in academic years.

4

k) - Capacity of the study programme (planned number of students), the actual number of applicants and students.

Planed number of students 3 Actual academic year: 1st – 2 students 2nd – 3 students 3rd – 0 students 4th - 3 students

2. - Graduate profile and learning objectives

a) - The institution defines the learning objectives of the study programme such as student's abilities at the time of completion of the programme and the main learning outcomes.

The study program molecular biology stimulates the creative activity of the graduate in the field of molecular biology, applied biology and other biological disciplines. Deep theoretical knowledge is important, as well as knowledge from the methodology of science and processing of scientific results.
The graduate is fluent in an active foreign language (English), is able to work in a team, forecast developments in their field.
Attachment_13_Educational objectives and outputs_PhD_Molecular biology_full-time
Study and pedagogical-educational activities
Independent study of literature according to the recommendation of the supervisor - Acquired skills
Methods in molecular biology - Acquired knowledge
Genomics for doctoral students - Acquired knowledge
Proteomics for doctoral students - Acquired knowledge
Functional analysis of proteins and modelling - Acquired knowledge
Selected chapters on the physiology and molecular biology of plant stress - Acquired knowledge
Creative activity
first-author publication in a scientific journal registered in the Web of Science databases and included in Q1 according to JCR IF - Acquired skills
publication in a scientific journal registered in the Web of Science databases and classified in Q1 according to JCR IF - Acquired skills
first-author publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF - Acquired skills
publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF - Acquired skills
first-author publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF - Acquired skills
publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF - Acquired skills
publication in a scientific journal registered in the Web of Science databases and classified in Q4 according to JCR IF - Acquired skills
publication in a scientific journal registered in the Web of Science or Scopus databases without inclusion in Q1-Q4 in JCR IF - Acquired skills

b) - The institution indicates the professions for which the graduate is prepared at the time of completion and the potential of the study programme from the point of view of graduate's employability.

The graduate of the doctoral study program Molecular Biology (PhD.)
- actively speaks English
- is able to work independently and creatively scientifically in various fields of biology, as well as in frontier disciplines
- masters scientific approaches and research methodology in selected application areas of applied biology using the most modern methods of molecular biology and genetics.
- is also able to design, manage and objectively evaluate problem-oriented experiments, focused on serious problems of current social practice.
- also performs activities in various other areas of social practice, in quality assurance and management, in environmental monitoring, in pharmaceutical, clinical biochemistry, molecular medicine, food and elsewhere.
- has basic managerial skills, focused on the application of applied biology in practice, is able to lead a research team, plan team tasks and also has knowledge of relevant environmental, economic, legal and ethical aspects.
- on the basis of the acquired knowledge he / she is able to teach specialized biological subjects at the university.The graduate of the study program molecular biology can seek employment in a wide range of workplaces with biological, microbiological and chemical focus in research teams, as well as in independent work with research and technical focus (SAS, universities, health, agriculture and forestry, food industry, environment, etc.). They are ready to meet the requirements of specialized institutions requiring field work, especially in workplaces dedicated to modern technologies (recombinant DNA technologies), microbiological and environmental-ecologically oriented workplaces, and they can also be used in state and local government institutions and private companies with research and technology orientation.

Occupations:
• Researcher, scientist
• Molecular biologist,
• Genetics,
• laboratory diagnostician,
• product specialist,
• chemical production operator,
• production technician,
• quality controller,
• research and development specialist,
• sanitation and hygiene specialist

c) - Relevant external stakeholders who have provided the statement or a favorable opinion on the compliance of the acquired qualification with the sector-specific requirements for the profession.

Biomedical Research Center of the Slovak Academy of Sciences
Tatrachema
GHC GENETICS SK Bratislava

3. - Employability

a) - Evaluation of the study programme graduates employability.

The graduates of the Molecular Biology are employed throughout Slovakia and abroad,
(Biomedical Research Center of the Slovak Academy of Sciences,
Laboratory of Environmental and Food Microbiology SAS Bratislava,
Alpha medical, Ltd. (Slovakia), Erba Lachema s.r.o, Brno,
GSK Group (Levice / Bratislava),
VWR International, Ltd. (Slovakia),
University of Ss. Cyril and Methodius in Trnava,
Regional Authority of Public Health Banska Bystrica,

b) - If applicable, indicate the successful graduates of the study programme.

RNDr. Michaela Mrkvová, PhD.
Mgr. Dominika Vešelényiová, PhD.
RNDr. Sabina Lipničanová, PhD.
RNDr. Michaela Mancoš, PhD.
RNDr. Matej Planý, PhD.
RNDr. Zuzana Janíčková, PhD.

c) - Evaluation of the study programme quality by employers (feedback).

Biomedical Research Center of the Slovak Academy of Sciences
Tatrachema s.r.o.
GHC GENETICS SK Bratislava,
Attachment_04_

4. - Structure and content of the study programme

a) - The institution describes the rules for the design of study plans within the study programme.

The process of creating, modifying, and approving study programs is governed exclusively by the standards for the SAAHE SR study program and the university guidelines created based on the standard for the internal quality assurance system.
https://intranet.ucm.sk/docs2/predpisy/ostatne/smernica_o_SP/Smernica_o_vytvarani,_uprave_a_schvalovani_studijnych_programov.pdf
The internal process of preparation of the study plan took place in accordance with the recommendations of SAAVS and the prepared standards for the internal quality system of UCM. The study plan was prepared by a working group, persons responsible for the implementation, development and quality of the study program with the cooperation of a representative of the student and the graduate.
The study plan fully takes into account the requirements set for the study field of biology in the system of study fields (core of knowledge, abilities and skills) and at the same time has ambitions to enable students to improve their choice in frontier biological disciplines.
The main topics are fulfilled as follows:
1.-2. year of study: compulsory subjects are methods of molecular biology, professional English for doctoral students and compulsory elective subjects are genomics for doctoral students, proteomics for doctoral students, molecular biology for doctoral students, agricultural biotechnology for doctoral students, functional protein analysis and modeling, reproductive biology plants, selected chapters from plant physiology and molecular biology.
Within the study and pedagogical-educational activities, the student completes selected activities for which he / she obtains credits for passing the compulsory subject, passing the compulsory elective subject and own pedagogical activity of doctoral student I-VII, supervision of the final bachelor's thesis, elaboration of the final thesis or co-authorship in the creation of teaching materials, independent study of professional literature according to the recommendations of supervisors I and II and dissemination and application of the results of science and technology in practice.
The creative activity is suitably set up and consists of the following parts: first-author publication in a scientific journal registered in the Web of Science databases and included in Q1 according to JCR IF; publication in a scientific journal registered in the Web of Science databases and classified in Q1 according to JCR IF; first-author publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF; publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF; first-author publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF; publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF; publication in a scientific journal registered in the Web of Science databases and classified in Q4 according to JCR IF; publication in a scientific journal registered in the Web of Science or Scopus databases without inclusion in Q1-Q4 in JCR IF and other creative activities as a publication in a peer-reviewed proceedings , active participation in a foreign scientific event (declares a published contribution in the proceedings), active participation in a domestic scientific event (declares a published contribution in the proceedings), member of the research team in a foreign scientific project registered at UCM, member of the research team in a domestic project. APVV, VEGA, KEGA, OPVaI), registered at UCM, response to publication output registered in Web of Science or Scopus databases (must not be self-citation, must be FPV UCM affiliation), obtaining an internal grant, mastering a new experimental methodology I, mastering a new experimental methodology IIa presentation at the seminar.
Attachment_12_ Recommended_study_plan_PhD_Molecular biology_full-time

b) - The institution compiles the recommended study plans for individual study paths.

Attachment_12_ Recommended_study_plan_PhD_ Molecular biology_full-time

c) - The study plan generally states:

Attachment_11_Subject information sheets_PhD._Molecular biology
Study and pedagogical-educational activities:
1. Doctoral student's own pedagogical activity I-VII
2. Supervision of the final bachelor's thesis
3. Elaboration of an opinion for the final work
4. Authorship or co-authorship in the creation of teaching materials
5. **Independent study of professional literature according to the recommendation of the supervisor I, II***
6. Supervising the work presented at the student scientific conference
7. Dissemination and application of the results of science and technology in practice

Compulsory subjects:
8. Dissertation state exam
9. Dissertation defence
10. **Methods of molecular biology**
11. Professional English for doctoral students

Compulsory optional subject:
12. **Genomics for doctoral students**
13. Proteomics for doctoral students
14. Molecular biology for doctoral students
15. Agricultural biotechnologies for doctoral students
16. Functional analysis of proteins and modelling
17. Reproductive biology of higher plants
18. Selected chapters on the physiology and molecular biology of plant stress

Creative activity:
19. First-author publication in a scientific journal registered in the Web of Science databases and included in Q1 according to JCR IF
20. Publication in a scientific journal registered in the Web of Science databases and included in Q1 according to JCR IF
21. First-author publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF
22. Publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF
23. First-author publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF
24. Publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF
25. Publication in a scientific journal registered in the Web of Science databases and included in Q4 according to JCR IF
26. Publication in a scientific journal registered in the Web of Science or Scopus databases without inclusion in Q1-Q4 in JCR IF
27. Other creative activity
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* the profile subjects are marked in bold

d) - The institution states the number of credits, the achievement of which is a condition for proper completion of studies and other requirements that the student must meet within the study programme and for its proper completion, including the requirements for state examinations, rules for re-study and rules for the extension, interruption of study.

The composition of the commission for state examinations is in accordance with the Higher Education Act, pursuant to Section 63, Paragraph 3 of Act no. 131/2002 Coll. on Higher Education Institutions, and with the Study Regulations of the University of Ss. Cyril and Methodius, which was approved by the UCM Academic Senate on June 10, 2013. The State Examination Commission has at least 4 members. The Commission shall be able to act if the chairman of the commission and at least two other members are present. University teachers, acting as professors and associate professors and other experts, approved by the relevant scientific council, have the right to take the state exam in doctoral and master's degree programs. At least two members of the commission shall be university teachers in the capacity of associate professor or professor. In addition to university teachers working as associate professors or professors and other practitioners approved by the Scientific Council, assistant professors with a third-degree university degree also have the right to take state examinations in bachelor's degree programs. At least one member of the commission must serve as an associate professor or professor. The chairman of the commission for state examinations is appointed by the dean from among professors and associate professors at universities. The course of the state examination is managed, and the chairman of the commission is responsible for the activities of the commission.

e) - For individual study plans, the institution states the requirements for completing the individual parts of the study programme and the student's progress within the study programme in the given structure:

50 credits for the study part,
35 credits for the pedagogical part,
95 credits for the scientific-research part,
60 credits for the state exam.
The total number of credits required to complete the doctoral study is **240 credits.**

f) - The institution describes the rules for verification of learning outcomes, students assessment and the possibilities of appealing against the assessment.

The rules for the verification of educational outcomes and the evaluation of students and the possibilities of corrective procedures against this evaluation are clearly described in the study regulations of the university, which the Faculty of Natural Sciences follows.
https://www.ucm.sk/docs/legislativa/studijny_poriadok_ucm_2020.pdf

g) - Conditions for recognition of studies or a part of studies.

against this evaluation are clearly described in the study regulations of the university, which the Faculty of Natural Sciences follows.
https://www.ucm.sk/docs/legislativa/studijny_poriadok_ucm_2020.pdf

h) - The institution states the topics of final theses of the study programme (or a link to the list).

https://katedrabiologie.sk/doktorandske-studium/
http://fpv.ucm.sk/sk/studium/doktorandske-studium.html

i) - The institution describes or refers to:

The proposals for the final theses are published by the training institutes through the academic information system (hereinafter referred to as "AIS") during the winter semester, no later than 31 January of the relevant academic year. The listed topics for the biotechnology study program are published on the faculty's website
http://fpv.ucm.sk/sk/studium/doktorandske-studium.html
The final thesis must be prepared according to the Rector's Directive on the requisites of final theses, their bibliographic registration, control of originality, storage, and access to the University of Ss. Cyril and Methodius in Trnava (valid since 2021)
Smernica o náležitostiach záverečných prác, ich bibliografickej registrácii, uchovávaní a sprístupňovaní na UCM (effective from September, 1, 2021)
https://www.ucm.sk/sk/legislativa/
and by the Study Regulations of the University of Ss. Cyril and Methodius in Trnava, which was developed by § 15, para. 1, letter b of Act 131/2002 Coll. on Higher Education and approved by the Academic Senate of UCM on April 28, 2020. The final thesis is a bachelor's thesis, a diploma thesis, and a dissertation. Through the dissertation, the student demonstrates the ability to work creatively in the field of study in which he completed the study program. The dissertation will be prepared by the student under the guidance of the supervisor by the internal regulations of UCM and the relevant faculty. The dissertation is assessed by a pair of opponents. The supervisor and the opponents will prepare a written report on the dissertation. The student has the right to one copy of the supervisor's and opponents' report no later than three days before the dissertation defense. The dissertation is a state exam. The commission for state examinations negotiates the result of the dissertation defense by a closed vote.
Smernica o plagiátorstve (effective from February, 1, 2019)
- opportunities and procedures for participation in student mobility,
ANS students who are interested in a stay abroad can take advantage of the wide range of mobilities through the Erasmus + program or they can complete a stay abroad based on international bilateral agreements or take advantage of opportunities under other mobility and scholarship schemes and programs.
ANS UCM students apply to their department coordinator in the form of a written application, which contains the contact details of the applicant and a brief justification of the study stay, prospective benefits. The system of allocating places within the ERASMUS+ program takes place in the form of a selection procedure at the faculty. The application deadline, the date of the selection procedure and the selection criteria for outgoing students are published on the faculty's website.
http://fpv.ucm.sk/sk/studium/studijne-pobyty.html
All information about study stays, the Erasmus+ project, student mobility, the pedagogical and non-pedagogical staff is also on a separate page: www.erasmus.ucm.sk
The faculty, based on a transparent selection procedure, according to proposals from the departments, nominates students for mobility under the valid between departmental bilateral agreements.

https://www.ucm.sk/docs/legislativa/2021/7_21_eticky_kodex_ studentov.pdf
Smernica o vybavovaní sťažností na UCM (effective from May, 1, 2021)
Smernica o vybavovaní otázok, vyjadrení, názorov, žiadostí, podnetov a návrhov na UCM (effective from May, 1, 2021)

The submission of suggestions by students is carried out through
Black Box - for your opinions, comments and questions and follows the university guidelines
Smernica o vybavovaní otázok, vyjadrení, názorov, žiadostí, podnetov a návrhov na UCM (effective from May, 1, 2021)
The link to enter the Black Box is on the UCM website https://www.ucm.sk/sk/black-box/

5. - Course information sheets of the study programme

In the structure according to Decree no. 614/2002 Coll.

In the structure according to Decree no. 614/2002 Coll. Attachment 11_List of information sheets_PhD_Molecular biology

6. - Current academic year plan and current schedule

(or hyperlink).

http://fpv.ucm.sk/sk/studium.html
FNS study schedule for academic year 2021/2022
http://fpv.ucm.sk/sk/rozvrh.html

7. - Persons responsible for the study programme

a) - A person responsible for the delivery, development, and quality of the study programme (indicating the position and contact details).

prof. RNDr. Juraj Krajčovič, CSc.
Juraj.krajcovic@ucm.sk
https://katedrabiologie.sk/juraj-krajcovic-2/

b) - List of persons responsible for the profile courses of the study programme with the assignment to the course and provided with a link to the central Register of university staff and with contact details (they may also be listed in the study plan).

prof. RNDr. Juraj Krajčovič, CSc.
• genomics for doctoral students
• molecular biology for doctoral students
• independent study of professional literature according to the recommendation of the supervisor I,II.
• first-author publication in a scientific journal registered in the Web of Science databases and included in Q1 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and classified in Q1 according to JCR IF
• first-author publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF
• first-author publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and classified in Q4 according to JCR IF
• publication in a scientific journal registered in the Web of Science or Scopus databases without inclusion in Q1-Q4 in JCR IF
https://www.portalvs.sk/regzam/detail/4310
juraj.krajcovic@ucm.sk

prof. Ing. Štefan Janeček, DrSc.
• functional analysis of proteins and modelling
https://www.portalvs.sk/regzam/detail/14371
Stefan.janecej@ucm.sk

Ing. Miroslav Glasa, DrSc.
• methods of molecular biology
https://www.portalvs.sk/regzam/detail/32350
miroslav.glasa@ucm.sk

Assoc. Prof. RNDr. Ľubica Uváčková, PhD.
• proteomics for doctoral students
• reproductive biology of higher plants
https://www.portalvs.sk/regzam/detail/24654
lubica.uvackova@ucm.sk

Assoc. Prof. Mgr. Ildikó Matušíková, PhD.
• selected chapters on the physiology and molecular biology of plant stress
https://www.portalvs.sk/regzam/detail/24651
ildiko.matusikova@ucm.sk

c) - Reference to the research/art/teacher profiles of persons responsible for the profile courses of the study programme.

Attachment_18a
prof. RNDr. Juraj Krajčovič, CSc.
prof. Ing. Štefan Janeček, DrSc.
Ing. Miroslav Glasa, DrSc.
Assoc. Prof. RNDr. Ľubica Uváčková, PhD.
http://fpv.ucm.sk/sk/pracovnici-bio.html
Assoc. Prof. Mgr. Ildikó Matušíková, PhD.
http://fpv.ucm.sk/sk/pracovnici-ker.html

d) - List of teachers of the study programme with the assignment to the course and provided with a link to the central Register of university staff and with contact details (may

be a part of the study plan).

prof. RNDr. Juraj Krajčovič, CSc.
• genomics for doctoral students
• molecular biology for doctoral students
• independent study of professional literature according to the recommendation of the supervisor I,II.
• first-author publication in a scientific journal registered in the Web of Science databases and included in Q1 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and classified in Q1 according to JCR IF
• first-author publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and included in Q2 according to JCR IF
• first-author publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and included in Q3 according to JCR IF
• publication in a scientific journal registered in the Web of Science databases and classified in Q4 according to JCR IF
• publication in a scientific journal registered in the Web of Science or Scopus databases without inclusion in Q1-Q4 in JCR IF
https://www.portalvs.sk/regzam/detail/4310
juraj.krajcovic@ucm.sk

prof. Ing. Štefan Janeček, DrSc.
• functional analysis of proteins and modelling
https://www.portalvs.sk/regzam/detail/14371
Stefan.janecej@ucm.sk

Ing. Miroslav Glasa, DrSc.
• methods of molecular biology
https://www.portalvs.sk/regzam/detail/32350
miroslav.glasa@ucm.sk

Assoc. Prof. RNDr. Ľubica Uváčková, PhD.
• proteomics for doctoral students
• reproductive biology of higher plants
https://www.portalvs.sk/regzam/detail/24654
lubica.uvackova@ucm.sk

Assoc. Prof. Mgr. Ildikó Matušíková, PhD.
• selected chapters on the physiology and molecular biology of plant stress
https://www.portalvs.sk/regzam/detail/24651
ildiko.matusikova@ucm.sk

Assoc. Prof. PaedDr. Juraj Miština, PhD.
• Professional english for doctoral students
https://www.portalvs.sk/regzam/detail/14520
juraj.mistina@ucm.sk

RNDr. Michal Konečný, PhD.
• genomics for doctoral students
https://www.portalvs.sk/regzam/detail/31331
michal.konecny@ucm.sk

prof. RNDr. Jan Kraic, PhD.
• agricultural biotechnology for doctoral students
https://www.portalvs.sk/regzam/detail/10524

jan.kraic@ucm.sk

e) - List of the supervisors of final theses with the assignment to topics (indicating the contact details).

prof. Ing. Štefan Janeček, DrSc.
Department of biology, UCM in Trnava

prof. RNDr. Ján Kraic, PhD.
Department of biotechnology, UCM in Trnava

prof. RNDr. Juraj Krajčovič, CSc.
Department of biology, UCM in Trnava

Ing. Miroslav Glasa, DrSc.
Department of biology, UCM in Trnava

Assoc. Prof. RNDr. Milan Seman, CSc.
Department of biology, UCM in Trnava

Assoc. Prof. Ing. Andrej Godány, CSc.
Department of biology, UCM in Trnava

Assoc. Prof. Mgr. Ildikó Matušíková, PhD.
Department of ecochemistry and radioecology, UCM in Trnava

Dr. Domenico Pangallo, DrSc.
Laboratory of environmental and food microbiology SAS, Bratislava

Assoc. Prof. RNDr. Ľubica Uváčková, PhD.
Department of biology, UCM in Trnava

Assoc. Prof. Mgr. Daniel Mihálik, PhD.
Department of biotechnology, UCM in Trnava

RNDr. Michal Konečný, PhD.
Department of biology, UCM in Trnava

Mgr. Lucia Kraková, PhD.
Laboratory of environmental and food microbiology SAS, Bratislava

List of the supervisors and final theses in Molecular biology in academic year 2022/2023
1. Analysis of the grapevine (Vitis vinifera L.) virome and optimization of molecular detection of viral pathogens
Supervisor: Ing. Miroslav Glasa, DrSc.,
Department of biology, UCM in Trnava and Institute of Virology, SAS Bratislava

2. Dynamics of digestive processes in carnivorous plants
Supervisor: Assoc. Prof. Mgr. Ildikó Matušíková, PhD.
Department of ecochemistry and radioecology, UCM in Trnava

3. Bioinformatics approaches to study sequences, structures, specificities and evolution of amylolytic enzymes
Supervisor: Prof. Ing. Štefan Janeček, DrSc.
Department of biology, UCM in Trnava

4. Gut microbiota and diabetic peripheral neuropathy: effect of cemtirestat in rat models of diabetes
Supervisor: Dr. Domenico Pangallo, DrSc.
Department of biology, UCM in Trnava and Laboratory of Environmental and Food Microbiology SAS,

Bratislava

5. Microbial starters and adjunct cultures for production of Slovakian bryndza cheese with traditional organoleptic properties.
Supervisor: Mgr. Lucia Kraková, PhD.
Department of biology, UCM in Trnava and Laboratory of Environmental and Food Microbiology SAS, Bratislava

List of the supervisors and final theses in Molecular biology in academic year 2021/2022
1. Meiotic genes and their expression in asexual euglenoid flagellates
Supervisor: prof. RNDr. Juraj Krajčovič, CSc.
Department of biology, UCM in Trnava

2. Investigation of the movement behavior of the euglenoid flagellates depending on the cell state
Supervisor: prof. RNDr. Juraj Krajčovič, CSc.
Department of biology, UCM in Trnava

3. Analysis of Euglena gracilis metabolism by proteomic methods
Supervisor: Assoc. Prof. Ľubica Uváčková, PhD.
Department of biology, UCM in Trnava

4. Study of genetic variants associated with periodontitis and association with the periodontal microbiome.
Supervisor: RNDr. Michal Konečný, PhD.
Department of biology, UCM in Trnava

5. Evolution of amylolytic enzymes – bioinformatics approaches to study their sequences, structures and specificities
Supervisor: Assoc. Prof. Ing. Štefan Janeček, DrSc.
Department of biology, UCM in Trnava

2020/2021
1. Impact of plastid damage and absence of stigma in the flagellate Euglena gracilis mutants on their motility
Supervisor: prof. RNDr. Juraj Krajčovič, CSc.
Department of biology, UCM in Trnava

2. Molecular detection and diversity of viral pathogens in wild perrenial species across agroecological interfaces
Supervisor: Ing. Miroslav Glasa, DrSc.
Department of biology, UCM in Trnava

3. Allocation of defense mechanisms against environmental stress in agricultural crops
Supervisor: Assoc. Prof. Mgr. Ildikó Matušíková, PhD.
Department of ecochemistry and radioecology, UCM in Trnava

4.Molecular plant strategies for the uptake, distribution and allocation of toxic metals in plants
Supervisor: Assoc. Prof. Mgr. Ildikó Matušíková, PhD.
Department of ecochemistry and radioecology, UCM in Trnava

5.Phenotypic, genotypic and phylogenetic analysis of pathogenic vibrios isolated from aquatic habitats of Slovakia
Supervisor: Assoc. Prof. RNDr. Milan Seman, CSc.
Department of biology, UCM in Trnava

7. Evolution of amylolytic enzymes
Supervisor: Assoc. Prof.Ing. Štefan Janeček, DrSc.
Department of biology, UCM in Trnava

8. Distribution modelling as tool to obtain non-invasive hair samples of brown bears
Supervisor: Assoc. Prof. Daniel Mihálik, PhD.,
Department of biotechnology, UCM in Trnava
Co-supervisor: prof. RNDr. Marián Janiga, PhD.
Department of biotechnology, UCM in Trnava, VÚVB ŽU Tatranská Javorina, NPPC Piešťany

f) - Reference to the research/art/teacher profiles of the supervisors of final theses.

http://fpv.ucm.sk/sk/pracovnici-bio.html
http://fpv.ucm.sk/sk/pracovnici-ker.html

g) - Student representatives representing the interests of students of the study programme (name and contact details).

Mgr. Andrea Patlevičová patlevicova1@ucm.sk
Rady pre študijné programy - Fakulta prírodných vied (ucm.sk)

h) - Study advisor of the study programme (indicating contact details and information on the access to counseling and on the schedule of consultations).

RNDr. Michaela Mrkvová, PhD.
e-mail: michaela.mrkvova@ucm.sk
The information on access to counselling is published on the faculty's website

i) - Other supporting staff of the study programme – assigned study officer, career counselor, administration, accommodation department, etc. (with contact details).

Study Department of the Faculty of Natural Sciences
PhDr. Soňa Svetíková, PhD. e-mail: sona.svetlikova@ucm.sk

Head of the UCM Student Home:
Mgr. Soňa Krahulcová e-mail: sona.krahulcova@ucm.sk

8. - Spatial, material, and technical provision of the study programme and support

a) - List and characteristics of the study programme classrooms and their technical equipment with the assignment to learning outcomes and courses (laboratories, design and art studios, studios, workshops, interpreting booths, clinics, priest seminaries, science and technology parks, technology incubators, school enterprises, practice centers, training schools, classroom-training facilities, sports halls, swimming pools, sports grounds).

The pedagogical process of the doctoral study program in molecular biology is carried out in classrooms in the UCM central buildings on J. Herdu Square, on Hajdóczyho Street and in the UCM building in Špačince (4 km from the University in Trnava), where suitable rooms for lectures and seminars are available. All classrooms are equipped with video projection technology. Laboratories used for teaching laboratory exercises at the Department of Biology are equipped with basic tools (chemicals, laboratory glassware, scales, small laboratory equipment) needed for each exercise. http://fpv.ucm.sk/sk/o-nas/fakulta-v-obrazoch.html

The laboratories in which the research activity is carried out have the following equipment: Equipment for all work in the field of molecular biology (cloning, gene expression, mutagenesis, bioinformatics analysis). State-of-the-art instrumentation and computer technology is also available. Examples are BIOSTAT A plus Sartorius fermenter, comfort thermomixer, IKA MS3 BASIC, Bandelin Sonopuls UW 2200 sonicator, Astell autoclave, microscopes, Biotek El800 and MRX / (Dynex) microplate counters, HPLC (Waters, Pye Unicam, Young Lin and Philips with UV / Vis and DAD detectors, Shimadzu FTIR-8000 infrared spectrophotometer Shimadzu, CHNS / O Elemental Analyzer FLASH EA2000, UV-Vis spectrophotometers VARIAN CARY 50 and M350 Camspec, laboratory centrifuge UNIVERSAL 320 R, orbital shaker PSU-20 (Biosan), ES-20 environmental shaker, Buchi vacuum evaporators, HETTICH UNIVERSAL 32 centrifuge, HETTICH MIKRO 22 R refrigerated centrifuge, Eppendorf Minispin microcentrifuge, HOEFER SE 245 electrophoresis, MPLC preparative chromatography system (also gradient) laboratory Flow and PCR boxes centrifuges, thermostats, apparatus for agarose and polyacrylamide gels, shakers, DGGE) and has the extensive software needed for bioinformatics research.

b) - Characteristics of the study programme information management (access to study literature according to Course information sheets, access to information databases and other information sources, information technologies, etc.).

Every student of the faculty has secure internet access. ANS UCM students have the opportunity to work in computer laboratories outside the program-organized training according to their own interests and the needs of solving tasks from seminars and exercises. They have computer classrooms with computers connected to the Internet and an internet room with free access with adequate software in the main UCM buildings. Another terminal classroom is in the premises of ANS UCM in Špačince.
Computer classrooms are periodically supplemented with more powerful computers and new computer and chemical software (Dragon 6, IBM SPSS Statistics 19, Analysis, QC Expert 3.1, Statistica 10.2 Base and Statistica 10.2 DataMiner). All teachers as well as internal doctoral students have an assigned computer connected to the Internet. The faculty uses the Academic Information System (AIS2).

c) - Characteristics and extent of distance education applied in the study programme with the assignment to courses. Access, manuals of e-learning portals. Procedures for the transition from contact teaching to distance learning.

Characteristics and extent of distance education applied in the study programme with the assignment to courses. Access, manuals of e- learning portals. Procedures for the transition from contact teaching to distance learning.
Study in accredited study programs in full-time and part-time study is carried out at UCM using the full-time method. The method of distance education is used in times of unfavorable epidemiological situation, or in other situations that seriously limit the implementation of full-time teaching, according to § 108e par. 2 of the University Act, in times of crisis, educational activities carried out by the full-time method can be carried out by the distance method. This form of education is governed by the directive: https://www.ucm.sk/docs/legislativa/2021/8_21_distancna_vyucba.pdf

d) - Institution partners in providing educational activities for the study programme and the characteristics of their participation.

lovak Academy of Sciences - cooperating workplaces, performance of experimental activities of part of PhD. Thesis (Institute of Virology, SAS Bratislava, Institute of Molecular Biology SAS, Biomedical Research Center of SAS, Laboratory of Environmental and Food Microbiology SAS, Bratislava etc.), National Agricultural and Food Centre, Research Institute of Plant Production, Piešťany, National Agricultural and Food Centre, Research Institute of Animal Production, Nitra, International Laser Centre, Bratislava, ICARST, n.o., Bratislava - joint laboratory in the building in Špačince, ANS, UCM

e) - Characteristics of the possibilities for social, sports, cultural, spiritual and social activities.

contributions to ensure sports and cultural events. Every year, in addition to the earmarked contribution from the Ministry of Education, Research and Sports, a part of the funds is allocated within the university budget.
The procedure for submitting and approving applications for contributions to students' sports and cultural events is regulated by the university's internal regulations. Application for a financial contribution (https://www.ucm.sk/sk/sportove-a-kulturne-aktivity-studentov/)
Students can participate in activities:
Folklore ensemble Trnafčan
UniTTy University Choir
THE.ART.RE University Theater
Hit UCM Trnava - University Women's Premier League Women's Volleyball Team
Student magazine FF - Parazol
Student magazine Atteliér
Student Radio Aetter
FMK TV
FMK student project gaudeo.sk

f) - Possibilities and conditions for participation of the study programme students in mobilities and internships (indicating contact details), application instructions, rules for recognition of this education.

Possibilities and conditions for participation of the study programme students in mobilities and internships (indicating contact details), application instructions, rules for recognition of this education.
The possibilities and conditions of students' participation in mobility are published on the faculty's website.
http://fpv.ucm.sk/sk/studium/studijne-pobyty.html
The system of allocating places within the ERASMUS+ program takes place in the form of a selection procedure at the faculty.
Smernica o administrácii programu Erasmus+ (effective from June, 1, 2021)
The rules for the recognition of this education are governed by the UCM Study Regulations and the document
Smernica o uznávaní absolvovaných predmetov (effective from May, 1, 2021)

9. - Required abilities and admission requirements for the study programme applicants

a) - Required abilities and necessary admission requirements.

Requirements for applicants and the method of their selection are specified in §56 to 58 of Act no. 131/2002 Coll. on Higher Education Institutions, they are regulated in more detail by the UCM Study Regulations in Trnava and the UCM Admission Procedure Regulations in Trnava.
UCM Admission Procedure Regulations (effective from September, 1, 2021)
https://www.ucm.sk/docs/legislativa/2021/29_21_Poriadok_prijimacieho_konania_na_UCM.pdf
Študijný poriadok UCM v Trnave (effective from September, 1, 2020, with the exception of § 28 par. 3, which enters into force on 28 April 2020)
https://www.ucm.sk/docs/legislativa/studijny_poriadok_ucm_2020.pdf
The basic condition for admission to doctoral studies is a second-level university education (Section 56 (3) of Act No. 131/2002 Coll. On Higher Education Institutions and on Amendments to Certain Acts). Graduates of domestic or foreign universities can apply for admission to study if they have completed a master's or engineering study.

b) - Admission procedures.

Study Regulations of UCM in Trnava (effective from September, 1, 2021)
https://www.ucm.sk/docs/legislativa/2021/29_21_Poriadok_prijimacieho_konania_na_UCM.pdf
The admission procedure at FNS UCM is carried out in accordance with Act no. 131/2002 Coll. on Higher Education Institutions and on Amendments to Certain Acts, Sections 56 to 58. The admission process will enable an applicant who proves the fulfilment of the specified conditions for admission to study to become a student of the chosen study program. An applicant who does not prove the fulfilment of the basic conditions for admission to the study at the time of verification of the fulfilment of the conditions for admission may be admitted to the study conditionally if he/she is obliged to prove the fulfilment of the basic conditions of admission to the study no later than on the day determined for enrolment.
The method of admission is governed by the general conditions approved by the academic senate of the faculty for the relevant academic year, which must be published together with the offer of study programs and the planned number of admitted applicants no later than September 20 of the academic year preceding the academic year. candidate accepted. General conditions of admission to study in accordance with Act no. 131/2002 Coll. about universities and university duties are published on the website of the faculty and university.
Applications for university studies are accepted by the deadline, which is usually published, usually by the end of April of the respective academic year.
Applicants apply for the topics listed, which are published on the faculty's website. During the admission to doctoral studies, there will be an admission interview, which takes place in the form of an interview, where the applicant presents his/her motives, a project on the topic of the dissertation and prerequisites for study, as well as knowledge of a foreign language.

c) - Results of the admission process over the last period.

Academic year Study program Number of applications Admissions Enrolment/Registration
2017/2018 Molecular biology 3 3 3
2018/2019 Molecular biology 5 4 4
2019/2020 Molecular biology 0 0 0
2020/2021 Molecular biology 6 5 5
2021/2022 Molecular biology 3 3 2

10. - Feedback on the quality of provided education

a) - Procedures for monitoring and evaluating students' opinions on the study programme quality.

Quality assurance of pedagogical staff and control and monitoring of the pedagogical process in the form of observations are defined by the directive Directive on the evaluation of creative activity at UCM https://intranet.ucm.sk/sk/interne-predpisy/(effective from July, 1, 2021)
The faculty ensures that the university teacher is the bearer of knowledge and experience for the transfer of knowledge in the subject he/she teaches. As part of the selection process, the faculty ensures compliance with the requirements of the minimum criteria related to education and the field, while the faculty defines additional criteria by which the teacher checks the carrier of professional knowledge and experience with regard to the subject he teaches. Emphasis is placed on the fact that university teachers use effective methods, methods and procedures for transferring knowledge in the subjects they teach. The function of monitoring the pedagogical process is to monitor and regularly evaluate the quality of the pedagogical process. The faculty declares its support for the professional growth of teachers.
Monitoring and evaluation of study programs and subjects and surveys of the opinions of relevant target groups in the field of education are defined by Directive 3/2014 Creation and monitoring of study programs.
The faculty thus strives to eliminate the risk of low quality and content focus of the study program in order to concentrate and process information from implemented questionnaire events and observations or other evaluations, review the pedagogical documentation of the study program and compare it with the concept of analogous study programs at renowned foreign universities.
The function of the survey of opinions of relevant target groups is to find out their opinions on various aspects of educational activities in order to obtain information that will lead to its improvement and to the adoption of effective measures to help increase quality in all areas of faculty activities. The relevant target groups are the internal target groups of the respondents (students, teachers and other staff) and the external target groups of the respondents (especially graduates, employers and practitioners).
https://www.ucm.sk/docs/legislativa/2021/Ziskavanie_relevantnej_spatnej_vazby_od_zainteresovanych_stran.pdf(effective from May, 1, 2021)
Monitoring and quality evaluation in the field of international relations and cooperation:
UCM offers students and teachers the opportunity to complete a study stay abroad through the ERASMUS program at one of the partner universities. In addition, it supports students and teachers in completing international mobility in other academic cooperation and exchange programs.
A report on the summary results of regular monitoring and evaluation of quality in the field of international relations and cooperation is prepared once a year, which is discussed and approved by the Rector's Board, the Dean's Board and the Scientific Council of the relevant faculty.

b) - Results of student feedback and related measures to improve the study programme quality.

Monitoring and evaluating the quality of information and promotion is a key area for eliminating information inequalities and raising the profile of the faculty and its study programmes among students, applicants, teachers, employers and other members of the public. Evaluation is carried out through a comprehensive report or through a quality measurement and evaluation information system.
The risk of dropping out for students who do not acquire the necessary knowledge, skills and abilities during their studies:
- risk of insufficient understanding of the subject (insufficient preparation from previous studies, lack of understanding of the connection with the subject of the prerequisite, student passivity...)
- risk of insufficient scope of understanding,
- risk of unequal treatment of students,
- risk of inappropriate choice of the study programme by the student in terms of his/her abilities and interests,
- risk of lack of employability of graduates in practice.

Ways the faculty will eliminate these risks:
- individual approach to students,
- assigning appropriate tasks and projects to support the active work of each student in seminars and workshops,
- offer of consultation hours,
- small groups for exercises,
- an offer of compulsory optional subjects fixing the substance to be taken over,
- incentive scholarship for excellent fulfilment of study obligations,
- the effective application of the above guidelines in the study program will also contribute to eliminating the risks.

c) - Results of graduate feedback and related measures to improve the study programme quality.

as proposed measures to eliminate the shortcomings.
http://fpv.ucm.sk/sk/o-nas/system-kvality-fakulty.html

11. - References to other relevant internal regulations and information concerning the study or the study programme student

(e.g study guide, accommodation regulations, fee directive, guidelines for student loans, etc.).

ANS study schedule for the academic year 2020/2021 http://fpv.ucm.sk/sk/studium.html
Accommodation regulations of the UCM student dormitory
https://www.ucm.sk/docs/legislativa/2021/2021-27_Ubytovaci_poriadok_ucm.pdf (effective from September, 1, 2021
Directive on tuition fees and fees associated with the UCM study
https://www.ucm.sk/docs/legislativa/skolne_a_poplatky_spojene_so_studiom_2020.pdf (effective from November, 1, 2020)