

Information sheet to subject

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| University: <i>University of Presov</i> | |
| Faculty: <i>Faculty of Humanities and Natural Sciences</i> | |
| Code: 2BIO/EROSJLABDM/26 | Course title: Laboratory Diagnostic Methods |
| Type, scope, and method of educational activities: Type of educational activity: Lecture/Laboratory Scope of educational activity: 1/1 hour per week; 13/13 per semester Method of educational activity: Lecture, laboratory practicals and self-study | |
| Number of credits: 5 | |
| Recommended semester: <i>Summer</i> | |
| Study grade: <i>bachelor</i> | |
| Conditions for passing the course: Form of assessment: Continuous evaluation: Active participation in lectures and exercises is mandatory for successful completion of the course. A student may have no more than 2 absences justified by a doctor. Students will not be given credits for unjustified or multiple absences. The condition for admission to the written examination will be active participation in all exercises and submission of the correct protocol from the laboratory exercise. The final exam will be written and will cover lectures, exercises and recommended literature. Criteria for grading the test: A: 100-90% points, B: 89-80% points, C: 79-70% points, D: 69-60% points, E: 59-50% points, FX = 49.99 and below. Final evaluation: Exam | |
| Aims and Objectives: Knowledge gained: The student: <ul style="list-style-type: none">- knows the basic principles of working in the laboratory,- knows laboratory terminology and the specific advantages and limitations of the use of equipment and chemicals in the laboratory,- knows the theoretical principle of the specific methods mentioned in the syllabus and the importance of the individual steps in the course of analysis,- knows the principles of various procedures and methods used in the diagnosis of diseases and pathologies, as well as methods used in basic or applied research. Skills acquired: The student: <ul style="list-style-type: none">- can operate basic laboratory equipment,- can independently perform some basic laboratory examinations,- acquire practical skills useful in further studies or future profession. Competences acquired: The student is able to use the knowledge for professional and personal development, especially in the form of: <ul style="list-style-type: none">- demonstration of the ability to observe the principles of health and safety when working with biological material,- mastering basic and special laboratory methods and examinations,- demonstration of critical and creative thinking using knowledge and skills of laboratory work,- implementation of acquired knowledge and skills with their subsequent synthesis and application in other professional subjects. | |
| Syllabus/Indicative Content: Basic principles of work in the laboratory. | |

Pipetting techniques.
Isolation methods.
Electrophoretic methods.
Hybridisation methods.
Amplification methods.
PCR.
Variants of PCR.
ELISA.
Flow cytometry.

Recommended literature:

DEBNATH, M.; SWATI, S.: A Handbook on Techniques of Molecular Biology. OrangeBooks Publication, 2024. ISBN 978-93-91768-00-0
BROWN, T. A.: Gene Cloning and DNA Analysis: An Introduction. Oxford: Wiley-Blackwell, 2016. ISBN 978-1-118-90722-7
AGRAWAL, S.: Techniques in Molecular Biology. New Delhi: International Book Distributing Company, 2008. ISBN 978-81-8189-151-8
GREEN, M. R.; SAMBROOK, J.: Molecular Cloning: A Laboratory Manual. Cold Spring Harbor: Cold Spring Harbor Laboratory Press, 2012. ISBN 978-1-936113-41-5
DOMINGUES, L. (ed.): PCR: Methods and Protocols. New York: Springer, 2023. ISBN 978-1-0716-3358-8
TECHNIQUES AND PROTOCOLS IN MOLECULAR BIOLOGY. London: Academic Press (Elsevier), 2023. ISBN 978-0-443-14160-7

Notes:

Course evaluation:

Total number of students evaluated:

| A | B | C | D | E | FX |
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Lecturers:

Assoc.Prof. RNDr. Iveta Boroňová, PhD. - guarantor
Assoc. Prof. MVDr. Soňa Mačková, PhD. - co-guarantor, lecturer, seminar, leader examine

Last update:22. April 2026

Approved by:*Assoc.Prof. RNDr. Iveta Boroňová, PhD. - guarantor*

