



Course Regime

Course: Epigenetics in Oncology

Study Programme:
Medicine

Year of the Course: 4 5 6

Semester:
Summer

Course type:
Elective

Number of ECTS credits: 3

Lecturer(s): Petra Hudler, Nataša Debeljak

Participating Organisational Units (Departments and Institutes): Institute of
Biochemistry and Molecular Genetics

Parts (Modules) of the Course: /

Date of Issue: 15. 9. 2021

A. General part (*applies to compulsory and elective courses*)

1. Course objectives

The objective of the program is to acquaint the students with the basics of epigenetic research in molecular biology of the complex diseases, leading to translation of methods into clinical diagnostics. The model diseases will focus on selected malignant tumours. They will learn to use basic epigenetic web-based tools and databases. They will understand biological and molecular basics of pathological consequences of aberrant epigenetic processes. Students will actively participate in the course. In each class, students will present and discuss in detail recent papers and background material concerning each individual topic.

2. Comprehensive outline of the course organisation

The course will be held in lecture rooms of the UL MF Institute of Biochemistry and Molecular Genetics. General study activities will include Introductory lectures, interactive lectures; supervision of students preparing their seminar works; Inquiry-Based Learning - students play an active and participatory role in their own learning process. Lecture summaries, study materials and materials for the preparation of the seminars will be available in the online classroom "Spletna učilnica UL MF".

The implementation schedule and method of implementation will be published in the document in UL MF Online Classroom. In the event of a changed epidemiological situation, students will be informed in a timely manner of any adapted method of implementation.

Students' obligations:

- Attendance at seminars is obligatory. Attendance at lectures: 80 %.
- Replacing missing obligations in the case of justified absence: Lectures: the student must select additional seminar themes and present them to the students (if possible) and the lecturer. Seminars: the student must select additional tasks and present them to the students (if possible) and the lecturer
- Seminar: Students select a seminar topic from the articles and other study material available in the online classroom and mark their decision on the timetable document supplied by lecturers. Students will get detailed instructions on how to prepare a seminar at mandatory consultations with the lecturer/topic holder. One week before the presentation of the seminar they should also send the presentation document to lecturer. The student orally presents the theme (20 minutes) in the allocated timeslot and actively participates in the discussion.
- Instructions for creating a Seminar written report – the document must contain a short introduction, objective, presentation of the theme, discussion and conclusion.

3. Description of on-going assessment of knowledge and skills

There are no on-going assessments of knowledge and skills.

4. Required conditions for the final examination (Course Exam)

The student must prepare a written seminar report and defend the seminar at seminar lectures. The student must participate in the final discussions.

Evaluation of the oral presentation of the seminar (elements of the evaluation: length of the presentation, delivery, slides, knowledge and content, organization of the presentation, answering questions, discussion).

The student can fulfil the requirements for taking a course exam if he/she has not fulfilled them in the scope of the organised course activities during the course in the current academic year by preparing additional seminar themes and presenting them to the lecturer (and students if possible).

5. Final assessment and examination of knowledge and skills (Course Exam)

Presentation of seminar papers (50 % of the grade).

Written seminar report (50 % of the grade).

Evaluation method:

Grading system 1-10 (grades 1-5 unsatisfactory: knowledge does not reach minimum standards, grades 6-10 pass) in accordance with the document Regulations for assessment of knowledge and skills for the uniform master's study programs of medicine and dental medicine, which is available on the web site of UL Faculty of Medicine.

6. Other provisions

Maximal number of participants at the course: 20.

Eligibility of enrolment to the course: students must have completed courses of Concepts in Biochemistry and lab course of Medical Biochemistry and Molecular Biology.

Preparation of Seminar:

- Seminar: the student prepares a short report of selected seminar theme, one week before the presentation of the seminar the student should also send the presentation document to lecturer, presents the theme (20 minutes) to the fellow students and lecturer, discussion.

- Instructions for creating a Seminar report/presentation — must contain a short introduction, objective, presentation of the theme, discussion and conclusion.

7. Fundamental study material and Supplement reading

Primary study material:

Lectures and lecture notes.

Supplement reading:

1. Handel, A.E., G.C. Ebers, and S.V. Ramagopalan. Epigenetics: molecular mechanisms and implications for disease. *Trends Mol Med*, 2010, 16(1), 7-16.

2. Chen, Z.Y., J.L. Zhang, H.X. Yao, P.Y. Wang, J. Zhu, W. Wang, X. Wang, Y.L. Wan, S.W. Chen, G.W. Chen, and Y.C. Liu. Aberrant methylation of the SPARC gene promoter and its clinical implication in gastric cancer. *Sci Rep*, 2014, 4, 7035.

3. Ito, S. and I. Kuraoka. Epigenetic modifications in DNA could mimic oxidative DNA damage: A double-edged sword. *DNA Repair (Amst)*, 2015, 32, 52-7.

4. Cheng, Y. et al. Targeting epigenetic regulators for cancer therapy: mechanisms and advances in clinical trials. *Sig Transduct Target Ther* 4, 62 (2019). <https://doi.org/10.1038/s41392-019-0095-0>.

5. Kinnaird, A., Zhao, S., Wellen, K. et al. Metabolic control of epigenetics in cancer. *Nat Rev Cancer* 16, 694–707 (2016). <https://doi.org/10.1038/nrc.2016.82>

6. The latest review articles from the field.

8. Exam topics, clinical presentations and skills

Knowledge and understanding of the medical research work in the epigenetic field; students will understand how epigenetic changes affect pathological processes in the development and progression of cancer.

Understanding the strategies of epigenetic studies and experiments in relation to complex diseases; analysis of data; the use of online information resources.

Understanding the association between epigenetic changes and their influence on the transcriptome and selection of appropriate therapeutic approaches for patients.

9. Other information

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B. Elective Courses (*considered as Elective Course Announcement*)

1. **Participating main and guest lecturers:** Petra Hudler, Nataša Debeljak
2. **Estimated time period in the semester:** March, April, or May
3. **Maximum number of students for the elective course (if the number of students able to attend the course is limited):** 40
4. Please specify if the elective course is available in English for incoming international students (Erasmus + and others). Please specify any additional conditions in the case that the elective course is available for visiting students.

Yes, the elective course is available in English for incoming international students (Erasmus + and others). The lectures and seminars will be held in English language.

There are no additional conditions for visiting students, who wish to enrol to this elective course.

Additional explications and notes:

1. The Course Regime enters in force on the date of issue and remains valid until its revocation or alteration. The Course Regime may not be altered during the academic year. Any changes to the Course Regime may only enter into force starting with the next academic year (changes must be submitted no later than 14 days prior to the start of the academic year as the **new Course Regime**).
2. The Course Regime for *compulsory courses* must be published no later than 14 days prior to the start of the academic year.
3. The Course Regime for *elective courses* is also considered the Elective Course Announcement and must be published no later than the 30th of July prior to the start of the academic year in which it enters in force.
4. The Course Regime must be published in Slovenian and English.
5. In the Course Regime, the »Regulations for the Assessment of Knowledge and Skills for the Single-Cycle Master Study Programmes Medicine and Dental Medicine« will be referred to as "*Regulations*".

In case of any further questions, please contact the Study Affairs Commission of the UL MF, via e-mail: ksz@mf.uni-lj.si.