Detailed syllabus for the course:

# Molecular biology of tumors and anticancer drugs

**Academic year** : 2025/2026

**Study:** Graduate University Study - Drug Research and Development
Graduate University Study - Medicinal Chemistry

**Course code** : IRL 104

**ECTS credits** : 6

**Language of the course:** English

**Course load** : 60 hours (40P +20S)

**Contact information for teaching:**
Christian Reynolds, PhD
Email: christian.reynolds@uniri.hr
Address: Radmile Matejčić 2, 51000 Rijeka

**Consultation time** : by appointment

**Contractors and teaching loads**
Christian Reynolds (40P, 20S)

**Obligatory Reading:**

1. Thurston, D. E., & Pysz, I. (2021). Chemistry and pharmacology of anticancer drugs. CRC press.

**Course description** (summary and course objectives):

The main goal of this course is to provide insight into the mechanisms anticancer drugs based on biological targets of their action. To this end, the principles of medicinal chemistry and their application in the development anticancer drugs will be presented.

**Learning outcomes** :

Analyze the main targets of anticancer drugs.
Analyze anticancer drugs.

**Detailed course content (topics/titles of lectures, seminars and exercises):**

*Lectures* :

P1 Course Overview
P2 Introduction to Cancer
P3 The Evolution of Anticancer Therapies
P4 Antimetabolites (3hr)
P5 Antitubulin Agents (3hr)
P6 Nucleic Acids as Therapeutic Targets and Agents
P7 Small-Molecule Targeted Therapies
P8 Antibody-Based Therapies
P9 Endocrine Therapies
P10 Immunomodulatory Therapies
P11 Alternative Tumor-Targeting Strategies
P12 The Precision Medicine Approach in Oncology
P13 Chemopreventive Agents

*Seminars*:

S1 Student presentations on selected Antimetabolites
S2 Student presentations on selected Antitubulin Agents
S3 Student presentations on selected Nucleic Acids Therapeutics
S4 Student presentations on selected Small-Molecule Therapeutics
S5 Student presentations on selected Antibody-Based Therapeutics
S6 Student presentations on selected Endocrine Therapeutics
S7 Student presentations on selected Immunomodulatory Therapeutics
S8 Student presentations on selected Alternative Tumor-Targeting Therapeutics
S9 Student presentations on selected Precision Medicine Therapeutics
S10 Student presentations on selected Chemopreventive Therapeutics

**Obligations, method of monitoring and evaluating students:**

Classes take place in shifts from February 2, 2026 –to February 27, 2026 in the form of lectures and seminars. Students are expected to attend all classes and actively participate. During lectures and seminars, continuous assessment of the knowledge of the classes will be carried out.

50 points through continuous assessment. Students will collect up to 40 points through class attendance and regular quizzes, and 10 points through seminar presentations. The final exam is scored with a maximum of 50 points.

**Exam deadlines:**

The 1st exam period will be held on February 27, 2026 at 9:00 a.m. in room O-268.
The 2nd exam period will be held after two weeks in agreement with the students.
The 3rd term exams will be held in June as agreed with the students.
The 4th exam period will be held in September as agreed with the students.

**Forming an assessment:**
Students can earn a maximum of 50% of grade points during continuous teaching, and 50% on the final exam. Students who have achieved the following during the continuous teaching period:

- from 0 to 24.9% of grade points cannot take the final exam
- more than 25% of grade points can take the final exam.

The following final grades are awarded based on the total number of grade points achieved:

| Percentage of acquired knowledge and skills | ECTS grade | Numerical rating |
|---|---|---|
| 90% to 100% | A | Excellent (5) |
| 75% to 89.9% | B | Very good (4) |
| 60% to 74.9% | C | Good (3) |
| 50% to 59.9% | D | Sufficient (2) |
| 0% to 49.9% | F | Insufficient (1) |

The final grade is the number of points achieved on the final exam, and the passing grades are excellent (5), very good (4), good (3) and sufficient (2).

**Class schedule:**

| | Date | Group | Time | Place | Teaching format | Number of hours | Instructor |
|---|---|---|---|---|---|---|---|
| TUESDAY | 03.02.2026. | all | 09:00-10:30 | O-268 | P1 | 2 | Christian Reynolds |
| WEDNESDAY | 04.02.2026. | all | 09:00-12:00 | O-268 | P2 | 4 | Christian Reynolds |
| THURSDAY | 05.02.2026. | all | 09:00-12:00 | O-268 | P3 | 4 | Christian Reynolds |
| | | | 15:00-16:30 | O-268 | S1 | 2 | Christian Reynolds |
| FRIDAY | 06.02.2026. | all | 9:00-10:30 | O-268 | P4 | 3 | Christian Reynolds |
| TUESDAY | 10.02.2026. | all | 09:00-12:00 | O-268 | P5 | 3 | Christian Reynolds |
| | | | 15:00-16:30 | O-268 | S2 | 2 | Christian Reynolds |
| WEDNESDAY | 11.02.2026. | all | 09:00-12:00 | O-268 | P6 | 3 | Christian Reynolds |
| THURSDAY | 12.02.2026. | all | 09:00-12:00 | O-268 | P7 | 3 | Christian Reynolds |
| | | | 13:00-16:00 | O-268 | P8 | 3 | Christian Reynolds |

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|---|---|---|---|---|---|---|---|
| FRIDAY | 13.02.2026. | all | 11:30-14:30 | O-268 | S3-4 | 4 | Christian Reynolds |
| TUESDAY | 17.02.2026. | all | 09:00-12:00 | O-268 | P9 | 3 | Christian Reynolds |
| WEDNESDAY | 18.02.2026. | all | 09:00-12:00 | O-268 | P10 | 3 | Christian Reynolds |
| THURSDAY | 19.02.2026. | all | 09:00-12:00 | O-268 | P11 | 3 | Christian Reynolds |
| FRIDAY | 20.02.2026. | all | 09:00-12:00 | O-268 | S5-6 | 4 | Christian Reynolds |
| | | | 14:00-15:30 | O-268 | S7 | 2 | Christian Reynolds |
| TUESDAY | 24.02.2026 | all | 12:00-15:00 | O-268 | P12 | 3 | Christian Reynolds |
| | | | 15:00-16:30 | O-268 | S8 | 2 | Christian Reynolds |
| WEDNESDAY | 25.02.2026. | all | 13:00-16:00 | O-268 | P13 | 3 | Christian Reynolds |
| | | | 16:00-17:30 | O-268 | S9 | 2 | Christian Reynolds |
| THURSDAY | 26.02.2026. | all | 09:00-10:30 | O-268 | S10 | 2 | Christian Reynolds |
| FRIDAY | 27.02.2026. | all | 09:00-10:00 | O-268 | **ISPIT** | - | Christian Reynolds |

**Additional information:** All students are asked to respond to the evaluation of the quality of teaching work of teachers and associates so that based on assessments and suggestions, teaching in this course can be improved. The evaluation of teaching through the ISVU system is carried out using the " studomat " application on a form defined at the University of Rijeka level, and the results are anonymous. More information about all aspects of this process can be found in the University of Rijeka Study Quality Manual.

**Academic integrity**
Students are obliged to respect the principles of academic integrity and are referred to the documents of the University of Rijeka: *Code of* Ethics *of the* University *of Rijeka* and Code of *Ethics for Students.*