

Faculty of Medicine in Rijeka

**Curriculum
2024/2025**

For course

Clinical Oncology

Study program:	Medical Studies in English (R) University integrated undergraduate and graduate study
Department:	Department of Oncology and Radiotherapy
Course coordinator:	doc. dr. sc. Trivanović Dragan, dr. med.
Year of study:	4
ECTS:	2
Incentive ECTS:	0 (0.00%)
Foreign language:	Possibility of teaching in a foreign language

Course information:

The course of Clinical Oncology is a mandatory course at the fourth year of Medical school, which consists of 15 lectures as well as 15 practical teachings, 30 in total (2.0 ECTS). Lectures will be held in a lecture hall at the Clinic in the Hospital of Rijeka, while the practical part will be demonstrated at the Department of Oncology and Radiotherapy, Hospital of Rijeka.

The aim of this course is to introduce the medical students to the basics of origin of malignant diseases, main factors that cause it, cures and treatment as well as side effects. Another aim of this course is to incorporate knowledge on how to care about a terminally ill patient, and basic palliative care. Introducing the students to the measures of preventive treatments.

Syllabus: Students are taught about the biology of tumor growth and risk factors that can lead to malignant diseases. We shall be discussing the most common tumors and we will talk about each one as well as the basic therapy for a specific tumor. We shall be looking into the cytostatic treatment, radiotherapy (radical and palliative), biological therapy and hormonal therapy. Side effects of both oncological therapy, chemotherapy as well as radiotherapy will be looked into. We will also talk about palliative care and things that are done regarding palliative care. Prevention programmes in Croatia are also on the agenda.

Expected learning outcomes:

- Explain the molecular genetic basis of cancer
- Explain the way the immune system recognizes and fight malignant cells
- Explain findings on metastasis and angiogenesis
- Indicate the incidence and mortality of cancer in the country and the world
- List the basic risk factors for cancer
- Explain ways to prevent disease
- List and explain the basic therapy methods in oncology : radiotherapy, chemotherapy , biological therapy, immunotherapy, hormone therapy, and less applied forms of treatments
- List the incidence of the disease and factor of risks , therapy possibilities , prognostic parameters, prevention methods

Lectures will consist of both, theoretical and practical classes. Estimated course duration is 4 weeks time. After taking the final exam the student will be awarded with 2.0 ECTS points.

List of assigned reading:

DeVita H. et al.: Principles and Practice of Oncology, 11th Edition, Lippincott, Williams & Wilkins, 2018

List of optional reading:

Curriculum:

Lectures list (with titles and explanation):

L1. INTRODUCTORY LECTURE: FUNDAMENTALS OF ONCOLOGY AND MULTIDISCIPLINARY OF ONCOLOGY

Understanding the basics of the scope of oncology multidisciplinary science as well as ways of recognizing and evaluating an oncology patient and the basics of treatment in oncology. Basic concepts in diagnostics, treatment and epidemiology.

L2. BIOLOGY OF CANCER: HALLMARKS OF CANCER

Basics of tumor biology, carcinogenesis, angiogenesis and metastasis. Getting to know the molecular-genetic basis of cancer and what knowledge we use for the targeted treatment of malignant tumors. Basic knowledge of cell division and cell metabolism that we use in current and future ways of treating malignant diseases. Mechanisms of immunological recognition of malignant cells, tumor microcysts and the relationship with the host, the way of evolution, heterogeneity, metastases, angiogenesis and other mechanisms in tumor treatment and the fight against tumors. Through all these mechanisms, modern technologies, which are partly already applied and will follow in the further development of diagnostics and treatment of malignant diseases.

L3. THERAPEUTIC METHODS IN ONCOLOGY I: SURGICAL AND SYSTEMIC TREATMENT OF MALIGNANT TUMORS

Principles of cytostatic therapy, hormone therapy, biotherapy and other types of therapy)

Acquaintance of students with multimodal methods of tumor treatment, surgery, cytostatics, hormone therapy and other methods.

L4. THERAPEUTIC METHODS IN ONCOLOGY II: IMMUNOTHERAPY AND TARGETED TREATMENT:

Understanding progressive therapies that are rapidly developing in the world. The ways in which they work, which are further directions for improving the success of the treatment.

L5. THERAPEUTIC METHODS IN ONCOLOGY III:- RADIOTHERAPY

Getting to know the physical basics of radiation. Understanding of radiotherapy devices, effectiveness and side effects.

L6. BREAST CANCER

Acquaintance of students with risk factors for breast cancer. Histological and phenotypic differences in the behavior and treatment of breast cancer, multimodal principles of treatment and monitoring. Primary and secondary prevention.

L7. MALIGNANT TUMORS OF THE FEMALE SEXUAL ORGANS

Acquaintance of students with risk factors for malignant tumors of the female sexual organs. Histological and phenotypic differences in the behavior and treatment, multimodal principles of treatment and monitoring. Primary and secondary prevention.

L8. MALIGNANT TUMORS OF THE RESPIRATORY SYSTEM AND MEDIASTINUM

Acquaintance of students with risk factors for malignant tumors of the respiratory system and mediastinum. Histological and phenotypic differences in the behavior and treatment, multimodal principles of treatment and monitoring. Primary and secondary prevention.

L9. MALIGNANT TUMORS OF THE DIGESTIVE SYSTEM

Risk factors in both the female and male reproductive system. Most common pathohistological types. Methods of spreading of aforementioned tumors. Treatment of malignant tumors: surgically, with cytostatics, with radiotherapy, with biological therapy and with hormonal therapy. Prevention measures.

L10. MALIGNANT TUMORS OF THE URINARY SYSTEM AND MALE SEXUAL ORGANS

Risk factors for the malignant tumors of the urinary system and male sexual organs. Most common pathohistological types. Methods of spreading of aforementioned tumors. Treatment of malignant tumors: surgically, with cytostatics, with radiotherapy and with biological therapy. Prevention measures.

L11. HEAD AND NECK CANCERS

Risk factors for malignant tumors of the digestive and urinary tract system. Most common pathohistological types. Methods of spreading of aforementioned tumors. Treatment of malignant tumors: surgically, with cytostatics, with radiotherapy, and with biological therapy. Prevention measures.

L12. MALIGNANT BONE AND SOFT TISSUE TUMORS

Risk factors for malignant bone and soft tissue tumors, and common pathohistological types. Methods of spreading of aforementioned tumors. Treatment of malignant tumors: surgically, with cytostatics, with radiotherapy, and with biological therapy. Prevention measures.

L13. MALIGNANT TUMORS OF THE BLOOD-FORMING, LYMPHATIC AND ENDOCRINE SYSTEMS

Risk factors for the malignant tumors of the hematopoietic, lymphatic and endocrine systems. Most common pathohistological types. Methods of spreading of aforementioned tumors. Treatment of malignant tumors: with cytostatics, with radiotherapy and with biological therapy. Prevention measures.

L14. MALIGNANT SKIN TUMORS AND OF CENTRAL NERVOUS SYSTEM

Risk factors for the malignant skin tumors and of central nervous system. Most common pathohistological types. Methods of spreading of aforementioned tumors. Treatment of malignant tumors: surgically, with cytostatics, with radiotherapy and with biological therapy. Prevention measures.

L15. SUPPORTIVE AND SYMPTOMATIC TREATMENT; PALLIATIVE MEDICINE; HOSPICES; CANCER AND PUBLIC HEALTH INSTITUTION

Introducing students to patients in poor general condition and different ways of how to take care of them. Introducing palliative radiotherapy and chemotherapy. All the measures of symptomatic therapy. Introducing dietary issues and analgesic therapy. Pain infirmary. How does a hospice function? How are these patients supported by the system?

Practicals list (with titles and explanation):

P1. Introductory lesson: approach to an oncological patient, anamnesis and status

Mastering the approach to the oncological patient, taking of the anamnesis and status.

P2. Radiation devices, administration of cytostatics and biological therapy

Introduction to the radiation devices and their effect on the tissue. Side effects of the radiation and the recovery. Introduction to cytostatic therapy at the departments as well as at the day clinic. Administration of cytostatics, side effects and recovery. How to take care of febrile neutropenia. Introduction to the biological therapy, administration, side effects and recovery.

P3. Breast cancer

Introducing students to breast-conserving and radical surgery performed on female patients. Anamnesis and status. Plan of the radiotherapy. Side effects and remedy of radiation. Administration of cytostatics. Premedication. Side effects and recovery of cytostatics. Exercise of rights to a wig or breast prosthetics. Lymph drainage.

P4. Malignant tumors of the female reproductive system

Cases of female patients with vaginal, vulva, uterus and ovaries tumors. Anamnesis and status. Brachytherapy-simulation of the application of radioactive caesium. Side effects and recovery.

P5. Prostate cancers

Cases of patients with prostate tumors, localized illness and with metastasis. Anamnesis and status. Planning of conformal radiotherapy. Hormonal radiotherapy. Application of LHRH agonist. Radiation of bone metastasis. Cytostatic therapy in curing the prostate cancer.

P6. Intratoracal tumors

Cases of patients with intratoracal tumors: lung tumors and mesotheliomas. Anamnesis and status. Planning of radical radiotherapy. Cytostatic and biological therapy. Getting the patient ready for the administration of cytostatics. Syndrome of vena cava and Pancoast syndrome, treated as emergencies in oncology.

P7. Digestive system tumors

Cases of patients with esophagus, stomach, pancreas and colorectal tumors. Radiation side effects and recovery. Cytostatic therapy for aforementioned tumors. Cytostatic side effects and recovery. Application of biological therapy. Anus praeter.

P8. Urinary bladder and kidney tumors

Cases of patients with urinary bladder cancer and malignant kidneys tumors. Anamneses and status. Planning of radiotherapy concerning the urinary bladder cancer, immunotherapy. Biological therapy and its side effects. Recovery. Urostoma, nefrostoma.

P9. Oral cavity, pharynx and larynx cancers

Cases of patients with oral cavity, pharynx and larynx tumors. Anamnesis and status. Planning of concomitant chemoradiotherapy for the aforementioned tumors. Side effects and recovery from radiation and cytostatic therapy.

P10. Malignant tumors of central nervous system and paranasal sinuses

Cases of patients with malignant tumors of the central nervous system and paranasal sinuses. Anamnesis and status. Planning of radiotherapy for the glioblastoma and maxilla cancer. Therapy of the brain edema. Cytostatic therapy. Spinal cord compression. Supportive methods.

P11. Testicular tumors

Cases of patients with testicular tumor of seminoma and nonseminoma type. Anamnesis and status. Radiotherapy and cytostatic therapy. Side effects and recovery. Cryopreservation of sperm.

P12. Malignant skin tumors

Cases of basal cell carcinoma and planocellular skin carcinoma. Anamnesis and status. Radiotherapy. Treatment of radiodermatitis. Malignant melanoma. Treatment with special attention to biological therapy.

P13. Bone and soft tissue tumors

Cases of bone and soft tissue tumors. Anamnesis and status. Treatment of sarcoma.

P14. Hematological malignant tumors

Cases of hematological malignant diseases. Anamnesis and status, Radiation of the lymphoma and plasmacytoma.

P15. Palliative treatment

Cases of patients undertaking palliative treatment. Palliative patients' diet. Gastrostomy PEG. Analgesic therapy. Pain clinic. Evacuation of ascites and pleural effusion. Palliative radiotherapy and chemotherapy. Teams for palliative care and hospices.

Student obligations:

Students must attend lessons regularly and be actively involved in all the aspects of the course. During lessons and practical part, they must be ready at all times to answer questions. Therefore students must read designated texts before class and be prepared to participate in the lessons. The students must take two exams (2 half exams and the final exam). Students can be absent from the maximum of 30% of the classes, exclusively due to health reasons confirmed by a GP. Being present at classes is mandatory. The compensation of the lost classes is possible only with the agreement by the lecturer. In case the student is absent for more than 30% of the classes, it shall lose the privilege to attend further classes and to take the final exam. In accordance with that, the student has gained 0 ECTS points and is graded F.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

Grading criteria is carried out according to valid Regulations of studies University of Rijeka, and according to Regulations of grading students at the Faculty of Medicine in Rijeka (adopted by the Faculty committee of Medicine in Rijeka).

Final grade- written exam (max 50% of the final grade) + final oral exam (max of 50% of the final grade)

Written examination consists of 50 questions and can amount to max 50% of the final grade. Due to the results of the written part, the student qualifies to take the final oral exam. Students that get >25%, in the written part (25 or more correctly answered questions), get the right to take the final oral examination.

Final exam is oral and the student can get a maximum of 50% of the final grade, and depending on the satisfactory results of the exam it gets 25 or more percent according to the final grade .

- I. 45-50% excellent (5)- (A)
- II. 35-44 % very good (4)- (B)
- III. 30-34% good (3)- (C)
- IV. 25-29% sufficient (2)- (D)

Final grade: written examination + final oral exam

- I. 90-100% 5 A Excellent
- II. 75-89,9% 4 B Very good
- III. 60-74,9% 3 C Good
- IV. 50-59,9% 2 D Sufficient
- V. 0-49,9% 1 F Insufficient

Other notes (related to the course) important for students:

Classes, as well as all the other information about the course, such as exam dates are to be found on line, Department of Oncology and Radiotherapy

COURSE HOURS 2024/2025

Clinical Oncology

Lectures (Place and time or group)	Practicals (Place and time or group)
09.05.2025	
<p>L1. INTRODUCTORY LECTURE: FUNDAMENTALS OF ONCOLOGY AND MULTIDISCIPLINARY OF ONCOLOGY:</p> <ul style="list-style-type: none">• ONLINE (17:00 - 19:00) [2157]<ul style="list-style-type: none">◦ CO <p>L2. BIOLOGY OF CANCER: HALLMARKS OF CANCER:</p> <ul style="list-style-type: none">• ONLINE (17:00 - 19:00) [2157]<ul style="list-style-type: none">◦ CO <p>L3. THERAPEUTIC METHODS IN ONCOLOGY I: SURGICAL AND SYSTEMIC TREATMENT OF MALIGNANT TUMORS:</p> <ul style="list-style-type: none">• ONLINE (17:00 - 19:00) [2157]<ul style="list-style-type: none">◦ CO	<p>P1. Introductory lesson: approach to an oncological patient, anamnesis and status:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [2288]<ul style="list-style-type: none">◦ CO <p>P2. Radiation devices, administration of cytostatics and biological therapy:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [2288]<ul style="list-style-type: none">◦ CO <p>P3. Breast cancer:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [2288]<ul style="list-style-type: none">◦ CO
doc. dr. sc. Trivanović Dragan, dr. med. [2157] · viši asistent dr. sc. Vučinić Damir, dr. med. [2288]	
16.05.2025	
<p>L4. THERAPEUTIC METHODS IN ONCOLOGY II: IMMUNOTHERAPY AND TARGETED TREATMENT::</p> <ul style="list-style-type: none">• Clinic for infectious diseases (15:00 - 18:00) [2157]<ul style="list-style-type: none">◦ CO <p>L5. THERAPEUTIC METHODS IN ONCOLOGY III:- RADIOTHERAPY:</p> <ul style="list-style-type: none">• Clinic for infectious diseases (15:00 - 18:00) [2157]<ul style="list-style-type: none">◦ CO <p>L6. BREAST CANCER:</p> <ul style="list-style-type: none">• Clinic for infectious diseases (15:00 - 18:00) [2157]<ul style="list-style-type: none">◦ CO	<p>P4. Malignant tumors of the female reproductive system:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [2288]<ul style="list-style-type: none">◦ CO <p>P5. Prostate cancers:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [2288]<ul style="list-style-type: none">◦ CO <p>P6. Intratoracal tumors:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [2288]<ul style="list-style-type: none">◦ CO
doc. dr. sc. Trivanović Dragan, dr. med. [2157] · viši asistent dr. sc. Vučinić Damir, dr. med. [2288]	
23.05.2025	
<p>L7. MALIGNANT TUMORS OF THE FEMALE SEXUAL ORGANS:</p> <ul style="list-style-type: none">• Clinic for infectious diseases (15:00 - 18:00) [2157]<ul style="list-style-type: none">◦ CO <p>L8. MALIGNANT TUMORS OF THE RESPIRATORY SYSTEM AND MEDIASTINUM:</p> <ul style="list-style-type: none">• Clinic for infectious diseases (15:00 - 18:00) [2157]<ul style="list-style-type: none">◦ CO <p>L9. MALIGNANT TUMORS OF THE DIGESTIVE SYSTEM:</p> <ul style="list-style-type: none">• Clinic for infectious diseases (15:00 - 18:00) [2157]<ul style="list-style-type: none">◦ CO	<p>P7. Digestive system tumors:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [449]<ul style="list-style-type: none">◦ CO <p>P8. Urinary bladder and kidney tumors:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [449]<ul style="list-style-type: none">◦ CO <p>P9. Oral cavity, pharynx and larynx cancers:</p> <ul style="list-style-type: none">• Oncology clinic (10:00 - 13:00) [449]<ul style="list-style-type: none">◦ CO
Bukovica Petrc Ana-Marija, dr. med. [449] · doc. dr. sc. Trivanović Dragan, dr. med. [2157]	
30.05.2025	

<p>L10. MALIGNANT TUMORS OF THE URINARY SYSTEM AND MALE SEXUAL ORGANS:</p> <ul style="list-style-type: none"> • Clinic for infectious diseases (15:00 - 16:00) [2157] <ul style="list-style-type: none"> ◦ CO <p>L11. HEAD AND NECK CANCERS:</p> <ul style="list-style-type: none"> • Clinic for infectious diseases (15:00 - 16:00) [2157] <ul style="list-style-type: none"> ◦ CO <p>L12. MALIGNANT BONE AND SOFT TISSUE TUMORS:</p> <ul style="list-style-type: none"> • Clinic for infectious diseases (15:00 - 16:00) [2157] <ul style="list-style-type: none"> ◦ CO 	<p>P10. Malignant tumors of central nervous system and paranasal sinuses:</p> <ul style="list-style-type: none"> • Oncology clinic (10:00 - 12:00) [449] <ul style="list-style-type: none"> ◦ CO <p>P11. Testicular tumors:</p> <ul style="list-style-type: none"> • Oncology clinic (10:00 - 12:00) [449] <ul style="list-style-type: none"> ◦ CO <p>P12. Malignant skin tumors:</p> <ul style="list-style-type: none"> • Oncology clinic (10:00 - 12:00) [449] <ul style="list-style-type: none"> ◦ CO
Bukovica Petrc Ana-Marija, dr. med. [449] · doc. dr. sc. Trivanović Dragan, dr. med. [2157]	
06.06.2025	
<p>L13. MALIGNANT TUMORS OF THE BLOOD-FORMING, LYMPHATIC AND ENDOCRINE SYSTEMS:</p> <ul style="list-style-type: none"> • Oncology clinic (15:00 - 19:00) [314] [2157] <ul style="list-style-type: none"> ◦ CO <p>L14. MALIGNANT SKIN TUMORS AND OF CENTRAL NERVOUS SYSTEM:</p> <ul style="list-style-type: none"> • Oncology clinic (15:00 - 19:00) [314] [2157] <ul style="list-style-type: none"> ◦ CO <p>L15. SUPPORTIVE AND SYMPTOMATIC TREATMENT; PALLIATIVE MEDICINE; HOSPICES; CANCER AND PUBLIC HEALTH INSTITUTION:</p> <ul style="list-style-type: none"> • Oncology clinic (15:00 - 19:00) [314] [2157] <ul style="list-style-type: none"> ◦ CO 	<p>P13. Bone and soft tissue tumors:</p> <ul style="list-style-type: none"> • Oncology clinic (11:00 - 16:00) [449] [2157] <ul style="list-style-type: none"> ◦ CO <p>P14. Hematological malignant tumors:</p> <ul style="list-style-type: none"> • Oncology clinic (11:00 - 16:00) [449] [2157] <ul style="list-style-type: none"> ◦ CO <p>P15. Palliative treatment:</p> <ul style="list-style-type: none"> • Oncology clinic (11:00 - 16:00) [449] [2157] <ul style="list-style-type: none"> ◦ CO
Bukovica Petrc Ana-Marija, dr. med. [449] · prof. dr. sc. Dobrila-Dintinjana Renata, dr. med. [314] · doc. dr. sc. Trivanović Dragan, dr. med. [2157]	

List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
L1. INTRODUCTORY LECTURE: FUNDAMENTALS OF ONCOLOGY AND MULTIDISCIPLINARY OF ONCOLOGY	1	ONLINE
L2. BIOLOGY OF CANCER: HALLMARKS OF CANCER	1	ONLINE
L3. THERAPEUTIC METHODS IN ONCOLOGY I: SURGICAL AND SYSTEMIC TREATMENT OF MALIGNANT TUMORS	1	ONLINE
L4. THERAPEUTIC METHODS IN ONCOLOGY II: IMMUNOTHERAPY AND TARGETED TREATMENT:	1	Clinic for infectious diseases
L5. THERAPEUTIC METHODS IN ONCOLOGY III:- RADIOTHERAPY	1	Clinic for infectious diseases
L6. BREAST CANCER	1	Clinic for infectious diseases
L7. MALIGNANT TUMORS OF THE FEMALE SEXUAL ORGANS	1	Clinic for infectious diseases
L8. MALIGNANT TUMORS OF THE RESPIRATORY SYSTEM AND MEDIASTINUM	1	Clinic for infectious diseases
L9. MALIGNANT TUMORS OF THE DIGESTIVE SYSTEM	1	Clinic for infectious diseases
L10. MALIGNANT TUMORS OF THE URINARY SYSTEM AND MALE SEXUAL ORGANS	1	Clinic for infectious diseases
L11. HEAD AND NECK CANCERS	1	Clinic for infectious diseases
L12. MALIGNANT BONE AND SOFT TISSUE TUMORS	1	Clinic for infectious diseases
L13. MALIGNANT TUMORS OF THE BLOOD-FORMING, LYMPHATIC AND ENDOCRINE SYSTEMS	1	Oncology clinic

L14. MALIGNANT SKIN TUMORS AND OF CENTRAL NERVOUS SYSTEM	1	Oncology clinic
L15. SUPPORTIVE AND SYMPTOMATIC TREATMENT; PALLIATIVE MEDICINE; HOSPICES; CANCER AND PUBLIC HEALTH INSTITUTION	1	Oncology clinic

PRACTICALS (TOPIC)	Number of hours	Location
P1.Introductory lesson:approach to an oncological patient, anamnesis and status	1	Oncology clinic
P2. Radiation devices, administration of cytostatics and biological therapy	1	Oncology clinic
P3. Breast cancer	1	Oncology clinic
P4.Malignant tumors of the female reproductive system	1	Oncology clinic
P5. Prostate cancers	1	Oncology clinic
P6. Intratoracal tumors	1	Oncology clinic
P7.Digestive system tumors	1	Oncology clinic
P8.Urinary bladder and kidney tumors	1	Oncology clinic
P9.Oral cavity,pharynx and larynx cancers	1	Oncology clinic
P10.Malignant tumors of central nervous system and paranasal sinuses	1	Oncology clinic
P11. Testicular tumors	1	Oncology clinic
P12.Malignant skin tumors	1	Oncology clinic
P13.Bone and soft tissue tumors	1	Oncology clinic
P14. Hematological malignant tumors	1	Oncology clinic
P15. Palliative treatment	1	Oncology clinic

EXAM DATES (final exam):

1.	09.06.2025.
2.	11.07.2025.
3.	10.09.2025.