



**Course:** Clinical Oncology

**Lecturer:** Associate Professor Ingrid Belac-Lovasic MD, PhD

**Department:** Department of Oncology and Radiotherapy

**Study programme:** Integrated Undergraduate and Graduate University Study of Medicine in English language

**Study year:** 4th year

**Academic year:** 2020/2021

## SYLLABUS

**Information about the course (brief course description, general instructions, where and when will the lectures take place, equipment needed, instructions on attendance and coming prepared to class, students' obligations, etc.)**

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.

### **Lectures:**

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.

### **Mandatory reading book list:**

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

**Additional reading list:**

--

**Syllabus**

**List of lectures (with titles and explanations)**

**L1.. Introductory lecture: definition and field of oncological science**

Study outcome

Introduction to the basic fields of oncological science as well as the methods of evaluation of the patient, and the basic treatment in oncology.

**L2. Biology of cancer I :- molecular-genetic basis of cancer: cell division and cancer**

Study outcome

Introduction of the molecular-genetic basis of cancer which is becoming more and more the base for specific treatment of malign tumors. Revision of cell division, since the chemotherapy is based on the influence of cytostatics during individual phases of cell cycle.

**L3.Biology of cancer II:-immune recognition of malign cells;metastasis and angiogenesis; molecular diagnostics and treatment**

Study outcome

Studying different methods of immune recognition of malignant cells, keeping in mind that the immunological system is one of the most important factors in the destroying of the malignant cells. Discussion on the causes of metastasis of malignant tumors, and about the creation of their own circulatory system. Introduction to the basics of molecular diagnostics which is becoming the basis in treatment with biological therapy.

**L4.Epidemiology and prevention of malignant tumors; diagnostic methods in oncology**

Study outcome

How widespread are different types of malignant tumors throughout the world and in our country. What are the incidences of the most common types of tumor, in the world and in our country. Risk factors for some malign diseases. Measures of prevention for some malignant tumors. Getting to know some of the basic diagnostic methods in oncology.

**L5. Therapy methods in oncology I:- surgical and systematic treatment in malignant tumors( principles of cytostatic therapy, hormonal therapy, biotherapy, and thermo phototherapy)**

Study outcome

Explaining to students the ways of surgical treatment of malignant tumors. Explaining to students the basic principles of oncology treatments: basis of cytostatic therapy, hormonal therapy, biotherapy and thermo phototherapy.

**L6. Therapy methods in oncology II:- radiotherapy I:- physical assumptions in radiotherapy. Radiation devices**

Study outcome

Getting to know the basic physics of radiation. Getting to know the basic radiotherapy devices.

**L7. Therapy methods in oncology III:- radiotherapy II:- radiobiological assumptions of radiotherapy and radiocurability of tumors**

Study outcome

How is tissue affected with radiation: normal and tumor tissue. Application of electrons and photons in radiotherapy.

**L8. Malignant breast tumors**

Study outcome

Introducing the students to risk factors of breast cancer. Histology of breast cancer. Most common locations of the tumor. The ways of tumor spreading in the breasts. Methods of treating malign breast cancer: surgically, with cytostatics,with radiotherapy, biological therapy and hormonal therapy. Measures of prevention.

**L9. Malignant tumors in female and male genitalia**

Study outcome

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 respiratory system and of mediastinum**

##### Study outcome

Risk factors for the malignant tumors of the respiratory system and mediastinum. 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. Malignant tumors of digestive and urinary system**

##### Study outcome

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 tumors of the head and neck: bone tumors and soft tissue tumors**

##### Study outcome

Risk factors for malignant tumors of the head and neck, as well as of bones and soft tissues. 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.

#### **L13. Malignant tumors of hematopoietic, lymphatic and endocrine systems**

##### Study outcome

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**

##### Study outcome

Risk factors for the malignant skin tumors and of the 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**

Study outcome

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?

**Explanatory list of practical lessons:**

Practical part of the course in Clinical Oncology will be held at the Clinical Department for Radiotherapy and Oncology in the Hospital of Rijeka. In order to attend practical part of the course, it is vital for students to have acquired the theoretical part first. In the introductory part, students will be given details on the approach to the cancer patient. The student will be introduced to how a Clinic functions, with the radiation devices and with the administration of cytostatics, biological therapy, immunotherapy and hormonal therapy. The students will participate in the examination of the patients with different types, as well as stages of cancer. They will be taught how to take care of patients suffering from radiation chemotherapy side effects. They will meet a terminally ill patient.

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

Study outcome

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

**P2. Radiation devices, administration of cytostatics and biological therapy**

Study outcome:

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**

Study outcome

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**Study outcome

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**Study outcome

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**Study outcome

Cases of patients with intratoracal tumors: lungs 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**Study outcome

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**Study outcome

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**Study outcome

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**Study outcome

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**Study outcome

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**Study outcome

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**Study outcome

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

**P14. Hematological malignant tumors**Study outcome

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

**P15. Palliative treatment**Study outcome

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.

**Students' 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.

**The examination (how to take the exam, description of written/oral/practical parts of the examinations, points and the 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.**

Max. 50%	Numerical grade
45-50%	excellent (5)- (A)
35-44 %	very good (4)- (B)
30-34%	good (3)- (C)
25-29%	sufficient (2)- (D)

**Final grade: written examination + final oral exam**

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

**Other information about the course important to 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 SCHEDULE (for academic year 2020/2021)

Date	Lectures (time and place)	Practical classes (time and place)	Lecturer
03.03. 2021.	L1, L2 (08.00-10.00)	P1-P2, group 1 & 2 (10.00-12.00)  P1-P2, group 3 & 4 (14.00-17.00)	Ass.prof. PhD Ingrid Belac-Lovasić  Primarius MD PhD Goran Golčić MD Ana Marija Bukovica-Petrc  Primarius MD PhD Goran Golčić MD Ana Marija Bukovica-Petrc
10.03. 2021.	L3, L4, L5 (08.00-11.00)	P3-P5, group 1 & 2 (11.00-14.00)  P3-P5, group 3 & 4 (14.00-17.00)	Ass. prof. PhD Ingrid Belac-Lovasić  Primarius MD PhD. Goran Golčić MD Ana Marija Bukovica-Petrc  Primarius MD PhD. Goran Golčić MD Ana Marija Bukovica-Petrc
17.03. 2021.	L6, L7, L8 (08.00-11.00)	P6-P8, group 1 & 2 (11.00-14.00)  P6-P8, group 3 & 4 (14.00-17.00)	Ass. prof. PhD Ingrid Belac-Lovasić  Primarius MD PhD Goran Golčić MD Ana Marija Bukovica-Petrc  Primarius MD PhD Goran Golčić MD Ana Marija Bukovica-Petrc
24.03. 2021.	L9, L10, L11 (08.00-11.00)	P9-P11, group 1 & 2 (11.00-14.00)  P9-P11, group 3 & 4 (14.00-17.00)	Ass. prof. PhD Ingrid Belac-Lovasić  Primarius MD PhD Goran Golčić MD Ana Marija Bukovica-Petrc  Primarius MD PhD Goran Golčić MD Ana Marija Bukovica-Petrc
26.03. 2021.	L12, L13 (08.00-10.00)	P12-P13, group 1 & 2 (10.00-12.00)  P12-P13, group 3 & 4 (12.00-14.00)	Ass.prof. PhD Ingrid Belac-Lovasić  Primarius MD PhD. Goran Golčić MD Ana Marija Bukovica-Petrc  Primarius MD PhD. Goran Golčić MD Ana Marija Bukovica-Petrc

31.03. 2021.	L14, L15 (08.00-10.00)	P14-P15, group 1 & 2 (10.00-12.00)	Ass. prof. PhD Ingrid Belac-Lovasić  Primarius MD PhD. Goran Golčić MD Ana Marija Bukovica-Petrc
		P14-P15, group 3 & 4 (12.00-14.00)	Primarius MD PhD. Goran Golčić MD Ana Marija Bukovica-Petrc

Lectures will be held in the Lecture hall, Hospital of Rijeka, while the practical part will be held at the Clinic for Radiotherapy and Oncology, Hospital of Rijeka

	<b>LECTURES</b>	<b>Number of lectures</b>	<b>Venue</b>
L1	<b>Introductory lecture: definition and field of oncological science</b>	1	ORL lecture hall or online depending on the epidemiological situation
L2	<b>Biology of cancer I :- molecular-genetic basis of cancer: cell division and cancer</b>	1	ORL lecture hall or online depending on the epidemiological situation
L3	<b>Biology of cancer II:-immune recognition of malignant cells;metastasis and angiogenesis; molecular diagnostics and treatment</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L4	<b>Epidemiology and prevention of malignant tumors; diagnostic methods in oncology</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L5	<b>Therapy methods in oncology I:- surgical and systematic treatment in malignant tumors( principles of cytostatic therapy, hormonal therapy, biotherapy, and thermo phototherapy)</b>	1	ORL lecture hall or online depending on the epidemiological situation
L6	<b>Therapy methods in oncology II:- radiotherapy I:- physical assumptions in radiotherapy. Radiation devices</b>	1	ORL lecture hall or online depending on the epidemiological situation
L7	<b>Therapy methods in oncology III:- radiotherapy II:- radiobiological assumptions of radiotherapy and radiocurability of tumors</b>	1	ORL lecture hall or online depending on the epidemiological situation

L8	<b>Malignant breast tumors</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L9	<b>Malignant tumors in female and male genitalia</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L10	<b>Malignant tumors of respiratory system and of mediastinum</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L11	<b>Malignant tumors of digestive and urinary system</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L12	<b>Malignant tumors of the head and neck: bone tumors and soft tissue tumors</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L13	<b>Malignant tumors of hematopoietic, lymphatic and endocrine systems</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L14	<b>Malignant skin tumors and of central nervous system</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
L15	<b>Supportive and symptomatic treatment; palliative medicine; hospices; cancer and public health institution</b>	1	Lecture hall at the Hospital of Rijeka or online depending on the epidemiological situation
	<b>Total number of lectures</b>	<b>15</b>	

	<b>PRACTICAL CLASSES (topics)</b>	<b>Number of classes</b>	<b>Venue</b>
P1	<b>Introductory lesson: approach to an oncological patient, anamnesis and status</b>	1	Department of Radiotherapy and Oncology
P2	<b>Radiation devices, administration of cytostatics and biological therapy</b>	1	Department of Radiotherapy and Oncology
P3	<b>Breast cancer</b>	1	Department of Radiotherapy and Oncology
P4	<b>Malignant tumors of the female reproductive system</b>	1	Department of Radiotherapy and Oncology
P5	<b>Prostate cancers</b>	1	Department of Radiotherapy and Oncology
P6	<b>Intratoracal tumors</b>	1	Department of Radiotherapy and Oncology
P7	<b>Digestive system tumors</b>	1	Department of Radiotherapy and Oncology
P8	<b>Urinary bladder and kidney tumors</b>	1	Department of Radiotherapy and Oncology
P9	<b>Oral cavity, pharynx and larynx cancers</b>	1	Department of Radiotherapy and Oncology
P10	<b>Malignant tumors of central nervous system and paranasal sinuses</b>	1	Department of Radiotherapy and Oncology
P11	<b>Testicular tumors</b>	1	Department of Radiotherapy and Oncology
P12	<b>Malignant skin tumors</b>	1	Department of Radiotherapy and Oncology

P13	<b>Bone and soft tissue tumors</b>	1	Department of Radiotherapy and Oncology
P14	<b>Hematological malignant tumors</b>	1	Department of Radiotherapy and Oncology
P15	<b>Palliative treatment</b>	1	Department of Radiotherapy and Oncology
	<b>Total number of practical classes</b>	<b>15</b>	

	<b>EXAM DATES (final exam)</b>
1.	06.04. 2021. Department of Oncology and Radiotherapy
2.	15.06. 2021. Department of Oncology and Radiotherapy
3.	16.07. 2021. Department of Oncology and Radiotherapy
4.	14.09. 2021. Department of Oncology and Radiotherapy