Name of the course

Clinical oncology

Year of study **2024/2025**

Course teacher: Asst. Prof. Inga Marijanović, PhD, MD

Plan of the course

OBJECTIVES

Cancer is one of mankind's severest diseases, causing a death rate of 25% in developed countries. Due to advances in cancer screening, diagnoses and treatment, future doctors will face an increasing number of cancer patients and survivors. The aim of this course is to cover fundamental understanding of cancer biology, epidemiology, diagnostics, basic knowledge in systemic oncologic therapy and radiotherapy cancer, as well as outlines of role of family doctor and palliative care. Recognizing of oncologic emergencies as well as side-effects of oncologic treatment will be stressed out. In addition, students should become familiar clinical decision making based on interdisciplinary team communication and application of treatment concepts/algorithms in a multidisciplinary setting.

COURSE DESCRIPTION

Teaching is conducted in the form of lectures, seminars and exercises during which the teacher explains the topic and encourages active and critical thinking of the students and participation in the discussion. Teachers and students discuss the specifics and problems within each topic covered. Attendance records are kept for each student. At the end of the class there is a written final exam.

	Wednesday **08.01.2025.**	**Thursday,** **09.01.2025.**	**Friday,** **10.01.2025.**	**Monday,** **13.01.2025.**	**Tuesday,** **14.01.2025.**
8:30-9:15	Lecture 1	Lecture 2	Lecture 3	Lecture 4	Lecture 5
9:30-14:00	Exercises 1-5	Exercises 6-10	Exercises 11-15	Exercises 16-20	Exercises 21-25
14:15-15:45	Seminar 1 and 2	Seminar 3 and 4	Seminar 5 and 6	Seminar 7 and 8	Seminar 9 and 10
	Wednesday, **15.01.2025.**	**Thursday.** **16.01.2025.**	**Friday,** **17.01.2025.**		
9:00-13:30	Exercises 26-30	Exercises 31-35	Exercises		

	Topics of lectures and seminars
Lecture 1 ***Teacher: Asst. Prof. Marijanović***	Title: Introduction. Tumor biology.
	Short description: Familiarity with oncology, basic concepts and key features of cancer.
	The genetic basis of cancer. Oncogenes. Tumor suppressor genes. Tumorous angiogenesis, invasion and engraftment. The immune system and cancer.
	Literature: mandatory and supplementary.
Lecture 2	Title: Tumor etiology. Tumor epidemiology.

Teacher: ***Asst. Prof. Marijanović***	Short description: Familiarity with chemical, physical and biological carcinogenesis. Getting to know the basic parameters of descriptive epidemiology, the movement of cancer in the world and the most common types
	Literature: mandatory and supplementary.
Lecture 3 ***Teacher:*** ***Asst. Prof. Marijanović***	Title: Prevention and early diagnosis of malignant tumors. Psychosocial aspects of oncology patients.
	Short description: Familiarity with primary prevention, chemoprophylaxis, surgery prophylaxis, secondary prevention, screening methods for certain malignant tumors. Mental deviations in patients with malignant disease. Emotional support. The role of the doctor. Adjuvant treatment. Treatment of metastatic disease. Treatment of disease recurrence. A patient in the terminal phase.
	Literature: mandatory and supplementary.
Lecture 4 ***Teacher:*** ***Asst. Prof. Marijanović***	Title: Cytostatic therapy. Radiotherapy. Side effects of oncological treatment.
	Short description: Getting to know the physical and radiobiological basics of radiotherapy, forms of radiotherapy, radiotherapy devices, goals and unwanted effects of radiotherapy. Getting to know the kinetics of tumor cells and chemotherapy, the division of cytostatics, the method of application of cytostatics and the unwanted effects of chemotherapy. Familiarity with the most common side effects of oncological treatment, including emergency conditions caused by oncological treatment.
	Literature: mandatory and supplementary
Lecture 5 ***Teacher:*** ***Asst. Prof. Marijanović***	Title: Hormonal therapy. Immunotherapy. Other forms of therapy: targeted therapy, gene therapy, photodynamic therapy, hyperthermia, antiangiogenic therapy.
	Get to know the types of endocrine therapy (especially for breast and prostate cancer), the types and application of immunotherapy, the types and mode of action of targeted therapy, and other forms of oncology therapy.

	Literature: mandatory and supplementary
Seminar 1	Breast cancer
Teacher: ***Asst. Prof. Marijanović***	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of breast cancer
	Literature: mandatory and supplementary

Seminar 2 ***Teacher:*** ***Dr. Tomić***	Lung cancer
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of lung cancer
	Literature: mandatory and supplementary
Seminar 3 ***Teacher:*** ***Asst. Prof. Marijanović***	Skin cancer and melanoma
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of skin cancer, especially melanoma

	Literature: mandatory and supplementary
Seminar 4 ***Teacher: Dr. Buhovac***	Brain tumors
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of brain tumors
	Literature: mandatory and supplementary
Seminar 5 ***Teacher:*** ***Dr. Dragana Miletić***	Gastrointestinal tumors (Part I)
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of gastrointestinal tumors (part I)
	Literature: mandatory and supplementary
Seminar 6 ***Teacher:*** ***Dr. Parić***	Head and neck tumors
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of head and neck tumors
	Literature: mandatory and supplementary
Seminar 7 ***Teacher:*** ***Dr. Buhovac***	Urogenital tumors (Part I)
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of urogenital tumors (Part I)
	Literature: mandatory and supplementary
Seminar 8 ***Teacher: dr. Miletić***	Gastrointestinal tumors (Part II)
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of gastrointestinal tumors (Part II)
	Literature: mandatory and supplementary
Seminar 9 ***Teacher: Dr. Tomić***	Gynecological tumors
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of gynecological tumors
	Literature: mandatory and supplementary
Seminar 10 ***Teacher: dr. Kraljević***	Urogenital tumors (2. dio)
	Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of urogenital tumors (Part II)
	Literature: mandatory and supplementary

Required literature:
Clinical Oncology, editors Anthony J Neal and Peter J Hoskin, 4th edition; 2012. by Taylor and Francis Group
Written materials provided by teachers

Additional information about the course
1. Klinička onkologija, editors Vrdoljak E, Belac Lovasić I, Kusić Z, Gugić D, Juretić A; 2018. by Medicinska naklada
2. Cancer: Principles and Practice of Oncology, editors DeVita VT, Lawrence TS, Rosenberg SA, 11th edition, 2018. by Lippincott Williams and Wilkins;
3. Perez and Brady's Principles and Practice of Radiation Oncology, editors Halperin EC, Perez CA, Brady LW, Waser DE, 7th edition, 2018. by Lippincott Williams and Wilkins
4. www.nccn.org
5. www.esmo.org

Exam

At the end of the class there is a written final exam. The final exam is a written and oral exam.
The student succeeds on the basis of the solved questions on the test, of which 50% of the correct answers to the questions in the test must be satisfied in order to pass.

Final score:

The final assessment is carried out according to the Regulation of Studies of the University of Mostar and applies to all study groups. According to the Regulations on studying final grade is obtained as follows:

A = 91-100% 5

B = 79 to 90% 4

C = 67 to 78% 3

D = 55 to 66% 2

F = 0 to 54% 1

SYLLABUS

Name of the course	Clinical Oncology			**Code**	MFMSE906
Type of study program Cycle	Integrated university study program, Medicine			**Year of study**	**5th**
Credits (ECTS):	**2**	*Semester*	IX.	Number of hours per semester (l+s+e)	**5+10+35**
Status of the course:	mandatory	*Preconditions:*	in accordance with the Rulebook of the Integrated Studies at the School of Medicine University Mostar	*Comparative conditions:*	/
Access to course:	Fifth year students			*Hours of instructions*:	According to schedule

Course teacher:	Asst. Prof. Inga Marijanović, MD, PhD
Consultations:	As agreed with students
E-mail address and phone number:	inga.marijanovic71@gmail.com
Associate teachers	Asst. Prof. Ivana Tica Sedlar, MD, PhD Josipa Jović Zlatović, MD Teo Buhovac, MD Marija Kraljević, MD, PhD Dragana Miletić, MD Ana Parić, MD Krešimir Tomić, MD Sanda Čale, MD
Consultations:	As agreed with students
E-mail address and phone number:	
The aims of the course:	The aims of the course are: To teach students the basics of tumor etiology, general and specific diagnostic and therapeutic procedures with an emphasis on modern treatment of solid tumors. To train students to recognize oncological emergencies, as well as side effects of oncology therapy.

	Achieve students` understanding of the importance of a holistic approach to oncology patient care, as well as the role of the family physician in the care of these patients.
Learning outcomes (general and specific competences):	Describes and explains the basic concepts of biology, etiology and epidemiology of cancer. Lists and describes the types of primary prevention, secondary prevention and screening methods for certain malignant diseases. Describes a multidisciplinary approach to cancer treatment and types of diagnostics (molecular and laboratory, pathological and cytological). Describes the psychosocial approach to the patient with a malignant disease and the role of the family medicine doctor in the comprehensive approach to the oncology patient. Analyzes and explains the differences between adjuvant treatment, treatment of metastatic disease, treatment of relapse and patients in the terminal phase. and explains the basics of radiotherapy, chemotherapy, hormone therapy, immunotherapy, targeted therapy and other forms of oncology therapy and lists their forms, methods of application, goals and unwanted effects. Lists and classifies the most common side effects of oncology treatment, including emergencies caused by oncology treatment. Lists and describes the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis in cancer of various organ sites (breast cancer, lung cancer, skin cancer - with special reference to melanomas, tumors of the central nervous system, tumors of the gastrointestinal system, urogenital tumors, gynecological tumors, head and neck tumors).
Course content (Syllabus):	L1 Introduction to oncology. Tumor biology L2 Tumor etiology. Tumor epidemiology. Chemical, physical and biological carcinogenesis. L3 Prevention and early diagnosis of malignant tumors. Psychosocial aspects of oncology patients. L4 Cytostatic therapy. Radiotherapy. Side effects of oncological treatment. L5 Hormonal therapy. Immunotherapy. Other forms of therapy: targeted therapy, gene therapy, photodynamic therapy, hyperthermia, antiangiogenic therapy. S1 Breast cancer S2 Lung cancer S3 Skin cancer. Melanoma. S4 Tumors of central nervous system S5 Gastrointestinal tumors (Part I) S6 Head and neck tumors S7 Urogenital tumors (Part I) S8 Gastrointestinal tumors (Part II) S9 Gynecological tumors S10 Urogenital tumors (Part II) E1-E35 Anamnesis and examination in oncology. Approach to the oncology patient depending on tumor location and diagnosis. Work in the ward and clinic. Work in a day hospital (types of oncology therapy, methods of application). Work in the radiotherapy department (process of patient preparation for radiotherapy; CT simulation, contouring of tumor volume and organs at risk, preparation of radiation plan and radiotherapy process, brachyradiotherapy process). Participation in multidisciplinary teams and oncological councils. Psychosocial and nutritional approach to oncology patients. Management of emergency conditions in oncology.
Format of instruction (mark in bold)	**Lectures** | **Exercises** | **Seminars** | Independent assignments **Consultations** | Work with mentor | Field work | Other

Student responsibilities	Attending classes.			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	Practical training
	Oral exam	**Written exam**	Continuous assessment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF GRADE**
Attending classes	50	1.6	0%
Pre-exam/Written exam	10	0.4	100%
Total	60	2	100%

Further clarification:

Final score:
The final assessment is carried out according to the Regulation of Studies of the University of Mostar and applies to all study groups. According to the Regulations on studying final grade is obtained as follows:
A = 91-100% 5 (excellent)
B = 79 to 90% 4 (very good)
C = 67 to 78% 3 (good)
D = 55 to 66% 2 (sufficient)
F = 0 to 54% 1 (insufficient)

Required literature:	Clinical Oncology, editors Anthony J Neal and Peter J Hoskin, 4th edition; 2012. by Taylor and Francis Group Written materials provided by teachers
Optional literature:	Klinička onkologija, izdavači Vrdoljak E, Belac Lovasić I, Kusić Z, Gugić D, Juretić A; 2018. by Medicinska naklada Cancer: Principles and Practice of Oncology, editors DeVita VT, Rosenberg SA, Lawrence TS, 11th edition, 2018. by Lippincott Williams and Wilkins; Perez and Brady`s Principles and Practice of Radiation Oncology, editors Halperin EC, Perez CA, Brady LW, Waser DE, 7th edition, 2018. by Lippincott Williams and Wilkins
Additional information about the course	Teaching in Clinical Oncology consists of 50 hours (5 hours of lectures, 10 hours of seminars and 35 hours of exercises). Teaching is conducted in the form of lectures, seminars and exercises during which the teacher explains the topic and encourages active and critical thinking of the students and participation in the discussion. Teachers and students discuss the specifics and problems within each topic covered. At the seminars, students actively participate and critically discuss the thematic unit for which they should prepare in advance through the preparation of a seminar paper, in teams of several students, in the form of a structured PowerPoint presentation. During the exercises, students, with the help of assistants, apply the acquired knowledge practically through work in the clinic, ward, radiotherapy department and participation in multidisciplinary teams and oncology councils. Attendance records are made for each student. At the end of the class, there is a mandatory written final exam with multiple choice of answers (one of the five offered answers is always correct).

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**

I. ***Lecture***	**Title: Introduction to oncology. Tumor biology.**
	Short description:Familiarity with oncology, basic concepts and key features of cancer.
	Literature: mandatory and supplementary.
II. ***Lecture***	**Title: Tumor etiology. Tumor epidemiology. Chemical, physical and biological carcinogenesis.**
	Short description:.Familiarity with chemical, physical and biological carcinogenesis. Getting to know the basic parameters of descriptive epidemiology, the movement of cancer in the world and the most common types.
	Literature: mandatory and supplementary.
III. ***Lecture***	**Title: Prevention and early diagnosis of malignant tumors. Psychosocial aspects of oncology patients.**
	Short description: Familiarity with primary prevention, chemoprophylaxis, surgery prophylaxis, secondary prevention, screening methods for certain malignant tumors.
	Literature: mandatory and supplementary.
IV. ***Lecture***	**Title: Cytostatic therapy. Radiotherapy. Side effects of oncological treatment.**
	Short description: Getting to know the physical and radiobiological basics of radiotherapy, forms of radiotherapy, radiotherapy devices, goals and unwanted effects of radiotherapy. Getting to know the kinetics of tumor cells and chemotherapy, the division of cytostatics, the method of application of cytostatics and the unwanted effects of chemotherapy. Familiarity with the most common side effects of oncological treatment, including emergency conditions caused by oncological treatment.
	Literature: mandatory and supplementary.
V. ***Lecture***	**Title: Hormonal therapy. Immunotherapy. Other forms of therapy: targeted therapy, gene therapy, photodynamic therapy, hyperthermia, antiangiogenic therapy.**
	Short description: Get to know the types of endocrine therapy (especially for breast and prostate cancer), the types and application of immunotherapy, the types and mode of action of targeted therapy, and other forms of oncology therapy.
	Literature: mandatory and supplementary.
I. ***Seminar***	**Title: Breast cancer**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy,monitoring and prognosis of breast cancer
	Literature: mandatory and supplementary.
II. ***Seminar***	**Title: Lung cancer**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of lung cancer.
	Literature: mandatory and supplementary.
III. ***Seminar***	**Title: Skin cancer. Melanoma.**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of skin cancer, especially melanoma
	Literature: mandatory and supplementary.
IV. ***Seminar***	**Title: Tumors of central nervous system**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of brain tumors
	Literature: mandatory and supplementary.
V. ***Seminar***	**Title: Gastrointestinal tumors (Part I)**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of gastrointestinal tumors (part I)
	Literature: mandatory and supplementary.
VI. ***Seminar***	**Title: Head and neck tumors**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of head and neck tumors
	Literature: mandatory and supplementary.
VII. ***Seminar***	**Title: Urogenital tumors (Part I)**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of urogenital tumors (Part I)
	Literature: mandatory and supplementary.
VIII. ***Seminar***	**Title: Gastrointestinal tumors (Part II)**
	Short description: Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of gastrointestinal tumors (Part II)
	Literature: mandatory and supplementary.
IX.	**Title: Gynecological tumors**

Seminar	Short description:Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of gynecological tumors
	Literature: mandatory and supplementary.
X. ***Seminar***	**Title: Urogenital tumors (Part II)**
	Short description:Get to know the etiology and epidemiology, methods of diagnosis, types of therapy, monitoring and prognosis of urogenital tumors (Part II)
	Literature: mandatory and supplementary.