INFORMATION ABOUT THE COURSE

Oncology

1. Basic information

Field of studies field of medical and health sciences, discipline: medical sciences **Unit responsible for the field of studies** Faculty of Medicine Bydgoszcz University of Science and Technology **Level of studies** Uniform master's studies **Profile of studies** General academic **Form of studies** Full-time	**Studies cycle** …….. **Course code** 17-EMS-ONC-SP1 **Language** English **Obligatory** Yes

Prerequisites	Scope of knowledge of anatomy, physiology, human pathophysiology, histology, internal diseases, laboratory diagnostics, pharmacology, imaging diagnostics. Method of verification: Passing subjects defined as introductory is equivalent to meeting the prerequisites for the subject.
Introductory courses	Anatomy, Physiology with elements of clinical physiology, Pathophysiology, Histology, Internal diseases, Laboratory diagnostics, Pharmacology with toxicology, Imaging diagnostics
Coordinator	Maciej Harat, PhD, Assoc. Prof.

Study period	**Form of assessment** **Form and hours of classes**	**ECTS credits**
Winter semester	Exam Lecture 45h Exercise 60h Seminar 25h	7.0

2. Learning outcomes

Code	**Description of learning outcomes**	**Learning outcomes reference**
Knowledge (student knows and understands):		
K1	The graduate knows and understands issues in the field of immunology of cancers and immunological diseases and the principles of immunotherapy	C.W21.
K2	The graduate knows and understands the basics of radiotherapy	C.W41.
K3	The graduate knows and understands the concept of empathy and the phrases and behaviors used to express it	D.W6.
K4	The graduate knows and understands the specificity and role of verbal communication (conscious construction of messages) and non-verbal	D.W7.

	communication (e.g. facial expressions, gestures, management of silence and space)	
K5	The graduate knows and understands the types of vascular access and their use, in particular in oncology	E.W14.
K6	The graduate knows and understands issues in the field of oncology, including: 1) genetic, environmental and epidemiological conditions, causes, symptoms, principles of diagnosis and therapeutic treatment in the most common cancers and their complications; 2) the most common paraneoplastic syndromes and their clinical symptoms; 3) basics of early cancer detection, principles of screening tests and preventive measures in oncology; 4) possibilities and limitations of modern cancer treatment (surgical methods, radiotherapy and systemic methods, including immunotherapy), indications for cell and gene therapies and treatment targeted and personalized; 5) early and late complications of oncological treatment; 6) the role of supportive treatment, including nutritional care; 7) principles of organizing care for oncological patients, including genetic counseling and multidisciplinary care; 8) practical aspects of statistics in oncology, including principles of interpreting clinical trial results; 9) the most important scales and classifications used in oncology; 10) principles of conducting targeted physical examinations of adults in the field of breast and prostate; 11) principles of planning diagnostic, therapeutic and preventive procedures in the field of cancer treatment based on test results and provided medical documentation	E.W24.
K7	The graduate knows and understands the principles of qualifying for palliative care and therapeutic procedures in the most common problems of palliative medicine, including: 1) symptomatic treatment of the most common somatic symptoms; 2) management of cancer cachexia and prevention and treatment of pressure sores; 3) the most common emergencies in medicine palliative	E.W25.
K8	The graduate knows and understands the principles of palliative care used in patients suffering from a serious illness, including terminal illness	E.W26.
K9	The graduate knows and understands the classification of pain (acute and chronic or nociceptive, neuropathic and nociplastic) and its causes, pain assessment tools and principles of its pharmacological and non-pharmacological treatment	E.W27.
K10	The graduate knows and understands the most common complications of modern oncological treatment	F.W5.
K11	The graduate knows and understands the principles of management of long-term central venous catheters	F.W14.
K12	The graduate knows and understands conditions in which the duration of further life, functional status or patient preferences limit management in accordance with the guidelines specified for a given disease	F.W22.

K13	The graduate knows and understands the epidemiology of neoplastic diseases, in particular their nutritional, environmental and other lifestyle-related conditions affecting oncological risk	G.W21.
K14	The graduate knows and understands the importance of screening tests in oncology, including the risk associated with diagnostic tests of healthy people, and health benefits in relation to the most common neoplastic diseases in the Republic of Poland.	G.W22.
K15	The graduate knows and understands the symptoms and course of cancer	O.W2.
K16	The graduate knows and understands the diagnostic and therapeutic procedures appropriate for specific disease states	O.W3.
Abilities (student can do/perform):		
A1	The graduate is able to use open and closed questions, paraphrase, clarification, internal and final summaries, signaling, active listening (e.g. capturing and recognizing signals sent by the interlocutor, verbal and non-verbal techniques) and facilitation (encouraging the interlocutor to speak)	D.U10.
A2	The graduate is able to adapt the manner of verbal communication to the patient's needs, expressing oneself in a clear manner and avoiding medical jargon	D.U11.
A3	The graduate is able to recognize and analyze difficult situations and challenges related to communication, including crying, strong emotions, anxiety, interruptions, troublesome and sensitive issues, silence, withdrawal, aggressive and demanding behavior, and deal with them in a constructive way	D.U12
A4	The graduate is able to collect an interview with an adult, including an elderly person, using the skills of the biomedical perspective and the patient's perspective	E.U1.
A5	The graduate is able to recognize the most common symptoms of the disease in adults, use diagnostic tests and interpret their results, perform differential diagnosis, implement therapy, monitor the effects of treatment and assess the indications for specialist consultation, in particular in the case of symptoms such as: 1) fever 2) weakness 3) loss of appetite 4) weight loss 5) nausea and vomiting 6) swallowing disorders 7) abdominal pain 8) presence of blood in the stool 9) constipation and diarrhea 10) jaundice 11) flatulence and resistance in the abdominal cavity 12) anemia 13) lymphadenopathy 14) hematuria	E.U9.
A6	The graduate is able to recognize conditions requiring treatment in hospital conditions	E.U12.
A7	The graduate is able to keep medical records of the patient, including in the form of electronic, in accordance with legal regulations	E.U18.
A8	The graduate is able to plan diagnostic, therapeutic and preventive procedures in the field of cancer treatment based on test results and provided medical documentation	E.U19.

A9	The graduate is able to provide the patient with information, adapting its amount and content to the patient's needs and capabilities, and supplement verbal information with models and written information, including charts and instructions, and use them appropriately	E.U25.
A10	The graduate is able to make diagnostic and therapeutic decisions together with the patient (assess the patient's level of involvement, their needs and capabilities in this area, encourage the patient to take an active part in the decision-making process, discuss the advantages, disadvantages, expected results and consequences of the decision) and obtain the patient's informed consent	E.U26.
A11	The graduate is able to apply the principles of providing feedback (constructive, non-judgmental, descriptive) within the framework of teamwork	E.U30.
A12	The graduate is able to recognize medical problems and determine priorities in the scope of medical treatment	O.U1.
A13	The graduate is able to plan diagnostic procedures and interpret their results	O.U3.
A14	The graduate is able to implement appropriate and safe therapeutic procedures and predict their effects	O.U4.
A15	The graduate is able to communicate with the patient and his family in an atmosphere of trust, taking into account the patient's needs, and to convey unfavorable information, applying the principles of professional communication	O.U7.
Social skills (the student is ready to):		
S1	The graduate is ready to establish and maintain deep and respectful contact with the patient, as well as to show understanding for ideological and cultural differences	O.K1.
S2	The graduate is ready to be guided by the patient's well-being	O.K2.
S3	The graduate is ready to respect medical confidentiality and the patient's rights	O.K3.
S4	The graduate is ready to take action towards the patient based on ethical principles, with awareness of social conditions and limitations resulting from the disease	O.K4.
S5	The graduate is ready to notice and recognize their own limitations, make self-assessment of deficits and educational needs	O.K5.
S6	The graduate is ready to promote pro-health behaviors	O.K6.
S7	The graduate is ready to use objective sources of information	O.K7.

S8	The graduate is ready to formulate conclusions from their own measurements or observations	O.K8.
S9	The graduate is ready to implement the principles of professional camaraderie and cooperation in a team, including with representatives of other medical professions, also in a multicultural and multinational environment	O.K9.
S10	The graduate is ready to formulate opinions on various aspects of professional activity	O.K10.
S11	The graduate is ready to accept responsibility related to decisions made as part of professional activity, including in terms of their own safety and the safety of others.	O.K11.

3. Programme contents

No.	Programme contents	Form of studies	Learning outcomes covered by the programme content
1	Biology of cancer: oncogenesis, cell division disorders, neoplastic transformation, oncogenes, proto-oncogenes, anti-oncogenes, cancer cell characteristics, apoptosis.	Lecture, Exercise	K1, A1, A2, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10
2	Fundamentals of modern cancer diagnostics and treatment: what is a cure in oncology, 5-year survival, mortality, primary and secondary prevention of cancer, screening tests, methods of cancer diagnosis, histopathological examination, tumor markers, tumor staging, degree of malignancy, TNM system, clinical stages, combination strategies, predictive and prognostic factors.	Lecture, Exercise	K1, K2, K3, A1, A2, A3, A4, A5, A6, A7, A8, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10
3	Radiotherapy of cancer: radical radiotherapy, palliative radiotherapy, types of radiation, interaction of ionizing radiation with an atom and a cell, radiosensitivity and radiocurability of cancers, therapeutic index, dose fractionation, emergencies in oncology treated with radiotherapy, stereotactic radiotherapy, intraoperative radiotherapy, brachytherapy, acute and late complications in radiotherapy.	Lecture, Exercise	K1, K2, K3, A1, A2, A3, A4, A5, A6, A7, A8, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10
4	Systemic treatment of cancer: classical chemotherapy, types of cytostatics, mechanism of action, routes of administration, multidrug regimens, radical and palliative chemotherapy, acute and late complications after radiotherapy, hormone therapy, targeted therapies, immunotherapy.	Lecture, Exercise	K1, K2, K5, A1, A2, A3, A4, A5, A6, A7, A8, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10
5	Patient after cancer treatment: post-treatment follow-up, physical, mental and social problems; disability, rehabilitation, chronic weakness, nutritional problems, sexual problems, pregnancy after cancer treatment, quality of life.	Lecture, Exercise	K1, K2, K3, K4, A1, A2, A3, A4, A5, A6, A7, A8, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10

6	Preparation of medical history for neoplastic disease: a) physical and subjective examination, with particular attention paid to the interview focused on the diagnosis of neoplasm, environmental and genetic predispositions; b) planning diagnostic tests, c) interpretation of laboratory, imaging, functional, and histopathological test results, d) making differential and final diagnoses, e) staging of the tumor, f) planning oncological treatment appropriate to the stage of the tumor, in the appropriate sequence (surgery, systemic treatment, and radiotherapy), g) planning the diagnosis, treatment, and control of possible side effects of oncological treatment, h) planning the evaluation of treatment results i) recognizing symptoms accompanying the neoplastic disease and proposing appropriate treatment - e.g. neoplastic wasting, pain, j) recognizing nutritional needs and planning possible dietary treatment, including paraenteral treatment, k) recognizing psychological and social needs, proposing remedial actions, l) proposing possible genetic counseling, m) planning follow-up tests, n) modern molecular diagnostics of tumors malignant, o) analysis and interpretation of molecular tests, p) the importance of basic research in the diagnosis and therapy of malignant tumors.	Exercise	K1, K2, K3, K4, A1, A2, A3, A4, A5, A6, A7, A8, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10
7	Care for a patient with cancer: a) physical examination and interview, with particular attention paid to the interview focused on the diagnosis of cancer, genetic and environmental predispositions, b) planning diagnostic tests, c) interpretation of laboratory, imaging, functional and histopathological test results, d) making a differential and final diagnosis, e) staging the cancer, f) planning oncological treatment appropriate to the stage of advancement, in the appropriate section,	Exercise	K1, K2, K3, K4, A1, A2, A3, A4, A5, A6, A7, A8, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10

	g) planning the diagnosis, treatment and control of possible side effects of oncological treatment, h) planning the assessment of treatment results, i) recognizing symptoms accompanying cancer and proposing appropriate treatment - e.g. cancer cachexia, pain, j) recognizing nutritional needs and planning possible dietary treatment, including paraenteral treatment, k) recognizing psychological and social needs, proposing activities remedies, l) proposing possible genetic counseling, m) planning follow-up tests, n) modern molecular diagnostics of malignant tumors, o) analysis and interpretation of molecular tests, p) importance of basic research in diagnostics and therapy of malignant tumors.		
8	1. Gastrointestinal system cancers. 2. Urogenital system cancers. 3. Lung cancer and other thoracic cancers. 4. Breast cancer. 5. Reproductive organ cancers. 6. Head and neck cancers. 7. Sarcomas and skin cancers. 8. Central nervous system cancers. 9. Epidemiology and individual cancers, subjective and objective symptoms, environmental and genetic predispositions, screening tests, imaging and functional diagnostics, histopathological diagnostics, treatment methods, treatment results, post-treatment observation, palliative treatment. 10. Radiotherapy: types of radiotherapy - teletherapy and brachytherapy, designation of areas for irradiation, designation of critical areas, treatment planning, methods of dose fractionation. 11. Cancer pain: scale of the problem, causes of pain, types of pain, nociceptive pain, neuropathic pain, diagnosis, methods of assessing pain intensity, principles of cancer pain treatment, WHO ladder, assessment of treatment effect, breakthrough pain - diagnosis and treatment, non-pharmacological treatment.	Seminar	K1, K2, K3, K4, A1, A2, A3, A4, A5, A6, A7, A8, S1, S2, S3, S4, S5, S6, S7, S8, S9, S10
9	Communication with the patient - 4h	Exercise, Seminar	A4, A5, A9, A10, S1, S2

4. Methods of verifying and assessing the learning outcomes achieved by the student

Winter semester

Form of studies		
Lecture	**Methods of studies form:**	
	Lecture, Discussion, Presentation, Case study	
	Methods of verification:	**Involvement:**
	Written exam	100%
	Conditions for passing the course:	
	The condition for passing the lecture is to obtain a positive grade in the written exam.	
Exercise	**Methods of studies form:**	
	Discussion, Laboratory, exercise, Clinical exercise, Presentation, Showcase	
	Methods of verification:	**Involvement:**
	Observation	20%
	Colloquium	80%
	Conditions for passing the course:	
	The condition for passing the exercises is 1) attendance at the classes; 2) colloquium 3) passing the exercises by the instructor based on an assessment of preparation for the classes, continuous observation and assessment of activity during classes, including the performance of procedures covered by the topics of the exercises.	
Seminar	**Methods of studies form:**	
	Project, Showcase, Discussusion, Presentation	
	Methods of verification:	**Involvement:**
	Presentation	50%
	Case study	50%
	Conditions for passing the course:	
	1) Preparation of a multimedia presentation 2) Development of projects/plans/reports as part of individual or group work, including defined diagnostic assessments and therapeutic treatment plans, and obtaining a positive assessment of the work.	

Learning outcomes	Methods of verification

	Written exam	Colloquium	Observation	Presentation	Case study
K1	X	X		X	X
K2	X	X		X	X
K3	X	X		X	X
K4	X	X		X	X
K5	X				X
A1	X		X		X
A2			X		X
A3			X		X
A4			X		X
A5			X		X
A6	x		X		X
A7			X		X
A8			X		X
A9			X		X
A10			X		X
S1			X		X
S2			X		X
S3			X		X
S4			X	X	X
S5			X	X	X
S6			X	X	X
S7			X	X	X
S8			X	X	X
S9			X	X	X
S10			X		X

5. Student workload – balance of hours and ECTS credits

Students activity		Student workload Number of hours
Classes conducted with the direct participation of an academic teacher or other persons conducting classes	Lecture	45
	Exercise	60
	Seminar	25
Student's own work	Preparing for classes	15

	Studying literature	15
	Preparing a multimedia presentation	7
	Preparing for an exam	20
Total student workload		187
ECTS		7

One (teaching) hour is 45 minutes.

6. Literature

The list of required and recommended literature will be provided by the lecturer at the first meeting.