For incoming ERASMUS medicine students

The following courses (below) will be conducted also in English in mixed groups (for Polish and foreign students).

Please note: Since you can choose courses from different clinical semesters, sometimes overlaps cannot be avoided.

All course catalog is available here: https://webapps.uz.zgora.pl/syl/index.php?/main/offerFacultyDetails/1351

English course catalog

Academic year 2023/2024

Summer Terms			Winter Terms		
Semester 2			Semester 3		
	Form of classes - Hours (full-time)	**ECTS**		**Form of classes - Hours (full-time)**	**ECTS**
Cytophysiology	Seminar (15)	1	**Biomechanics -** elective course	Class (30)	2
Medical ethics with elements of professionalism	Lecture (15), Seminar (15)	1	**Basics of health training for people of different ages-** elective course	Class (30)	2
Information technology	Laboratory (30)	2	**Humanization of Medicine**	Lecture (15), Seminar (15)	2
Molecular Biology	Lecture (15), Laboratory (15), Seminar (15)	4	**Immunology**	Lecture (30), Laboratory (30), Seminar (15)	6
Parasitology	Lecture (15), Laboratory (15)	1	**Microbiology**	Lecture (30), Laboratory (30), Seminar (15)	6
Sociology of Medicine	Lecture (15)	1	**Physical Education**	Class (30)	0
			Patient Rights	Seminar (15)	1
			Basics of speech therapy - elective course	Class (30)	2
			Medical English 1	Laboratory (45)	3
Semester 4			Semester 5		
	Form of classes - Hours (full-time)	**ECTS**		**Form of classes - Hours (full-time)**	**ECTS**
Clinical Laboratory Science	Lecture (30), Laboratory (45)	6	**Diagnostic imaging**	Lecture (15), Seminar (30)	4

				Clinical classes (15)	
Genetics	Lecture (30), Laboratory (30)	5	**Evidence-based Medicine**	Lecture (30)	2
Implants and Artificial Organs - elective course	Class (30)	2	**Medical Doctor in Pre-Litigation Procedures and in Legal Cases -** elective course	Class (30/30)	2
Medical English 2	Laboratory (45)	4	**Paediatrics 1**	Lecture (30), Seminar (10), (30)	5
			Pathology 1	Lecture (20), Laboratory (30), Seminar (15)	5
			Pharmacology with Toxicology	Lecture (20), Class (30), Seminar (15)	6
			Propedeutics of Internal Medicine	Lecture (30), Seminar (10), Clinical classes (30)	5
			Antimicrobial activities in wound infections- elective course	Class (15)	1
			Sexology	Lecture (15), Seminar (15)	1
			Mechanisms of antibiotics action and bacterial drug resistance strategies - elective course	Class (15)	1
Semester 6			Semester 7		
	Form of classes - Hours (full-time)	**ECTS**		**Form of classes - Hours (full-time)**	**ECTS**
General Surgery	Lecture (30), Seminar (10), Clinical classes (30)	4	**Internal Diseases - Diabetology**	Lecture (10), Seminar (5), Clinical classes (15)	2
Hygiene and Epidemiology	Lecture (15), Laboratory (20)	2	**-SARS-Cov-2 in questions and answers -** elective course	Class (30)	2

Nuclear Medicine	Seminar (5), Clinical classes (15)	1	**Medicines of natural origin -** elective course	Class (30)	2
Patology 1	Lecture (20), Laboratory (30), Seminar (15)	6	**Transplantology**	Lecture (5), Seminar (5)	1
Pharmacology with Toxicology	Lecture (20), Class (30), Seminar (15)	6	**Basics of sign language for doctors**	Class (30)	2
Strategies and types of gene therapy- elective course	Class (15)	1	**Oncological surgery**	Lecture (20), Seminar (10), Clinical (30)	4
Public Health	Lecture (15)	1			
Semester 8			Semester 9		
	Form of classes - Hours (full-time)	**ECTS**		**Form of classes - Hours** (full-time)	**ECTS**
Otolaryngology head and Neck Surgery	Lecture (20), Seminar (10), Clinical (30)	4	**Anesthesiology and Intensive Care**	Lecture (30), clinical (45)	5
Emergency Medicine	Lecture (10), Seminar (5), Clinical (30)	3	**Family Medicine**	Lecture (30), Clinical classes (30)	4
Infectious and Parasitic Diseases	Lecture (20), Seminar (10), Clinical (30)	4	**Oncology**	Lecture (30), Clinical classes (30)	4
Interventional Cardiology and Cardiac Surgery	Lecture (10), Seminar (10), Clinical (20)	2	**Neurology**	Lecture (30), Clinical classes (30)	5
Internal Diseases - Gastroenterology	Lecture (10), Seminar (5), Clinical (20)	2	**Rehabilitation**	Lecture (15), Clinical classes (15)	1
Internal Diseases - Hematology	Lecture (5), Seminar (10), Clinical (20)	2	**Vascular Surgery**	Lecture (15), Clinical classes (15)	2
Clinical nutrition – elective course	Class (30)	2			
Practical Radiology - elective course	Class (30)	2			
Semester 10				**Semester 11, 12**	
	Form of classes - Hours (full-time)	**ECTS**		**Clinical classes**	**ECTS**
Clinical Pharmacology	Lecture (15), Clinical classes (15)	1	**Internal diseases** 11 term	Clinical Class (140)	8
Gynaecology and Obstetrics	Lecture (45), Seminar (15),	6	**Pediatrics 3** 11 term	Clinical Class (70)	5

	Clinical classes (45)				
Paediatrics 2	Lecture (20), Seminar (20), Clinical classes (60)	5	**Emergency Medicine** 11 term	Clinical Class (60)	4
Palliative Medicine	Lecture (15), Clinical classes (30)	3	**Gynaecology and Obstetrics** 11 term	Clinical Class (60)	3
Surgery - Neurosurgery	Lecture (15), Clinical classes (30)	3	**Internal diseases** 12 term	Clinical Class (130)	9
Urology	Lecture (15), Clinical classes (15)	2	**Pediatrics** 12 term	Clinical Class (50)	4

You can ask in advance about the possibility of attending another courses in English-complete course list in Polish can be found here:
https://webapps.uz.zgora.pl/syl/index.php?/main/studyPlan/60381

Table of Contents

Anesthesiology and Intensive Care

Course name	Anesthesiology and Intensive Care
Course ID	12.0-WL-LekAM-AITe
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	9
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Bartosz Kudliński dr n. med. Sybilla Brzozowska-Mańkowska dr hab. n. med. Michał Gaca, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	45	Credit with grade
Lecture	30	Exam

Aim of the course

Aim of the course is to acquire abilities to prepare the patient to the procedure in anesthesia, the postoperative care and patient's monitoring - perioperative and during medical emergencies; knowledge of indications for ICU (Intensive Care Unit) admission; treatment of acute and chronic pain. Acquainting the student with the latest medical achievements in Anesthesiology and Intensive Care. Acquiring basic abilities in conducting medical research and adding those abilities and medical knowledge with clinical evidences. Students are provided with basic information regarding general and regional anesthesia. Clinical cases are conducted in operative rooms and Clinical Intensive Care Unit in University Hospital (and it's subdivisions), where students, under supervision of the physician leading the class, may assist in procedures done in anesthesiology, intensive care regarding ex. anesthesiology procedures (endotracheal intubation, central veins cannulation, regional anesthesia and others) and intensive care treatment (mechanical ventilation, extracorporeal treatments - CRRT, ECMO) and other. Students are able to assess patients general state before anesthesia with an emphasis on anamnesis and physical examination. Students are taught anesthetic techniques, principles of direct perioperative and postoperative care and treatment of acute postoperative pain. Students are monitoring patients' vital signs and interpreting the results. They assess patients' mental awareness, intensity of pain, respiratory and cardiovascular efficiency. In intensive care unit students are acquainted with diagnostics' and treatment of acute cardiovascular and respiratory distress in shock and taught how and when to use mechanical ventilation and monitoring devices and other intensive care procedures. During classes students are provided with direct contact with the patient. Students are taught with possibilities of treatment multiorgan failure, ectracorporeal techniques, their goals and efficiency.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pathomorphology, internal medicine propaedeutics, pediatric propaedeutics, laboratory diagnostics, chceked by pre- test before clinical classes.

Scope

1. Informed consent to anesthesia; informed consent, medical history and documentation, Helsinkis' declaration for informed anesthesia. 2. Is capable of providing definition of general

anesthesia, characterize periods of anesthesia, describe criteria of depth of anesthesia. 3. Describe in details preoperative examination and risk of procedure of anesthesia and operation. 4. Describe and proceed with preoperative care and patients' preparation, knows principles of premedication visit, devices and drugs used in general anesthesia; knows perioperative anestehsia risk scale. 5. Knows construction of anesthesia apparatus and their function. 6. Describes possible ways to conduct anesthesia. 7. Knows and describes drugs used in anesthesia. 8. Describes ways of drugs administration. 9. Describes stages of anesthesia. 10. List complications of anesthesia. 11. Anesthesia in places other than operating room. 12. principles of ERAS protocol. 13. Principles of PSH concept, regional anesthesia. 14. Gives definition and describes division of general anesthesia. 15. Justifies a choice of anesthesia and describes it's indications and contraindications. 16. Describes drugs used in local anesthesia. 17. Characterizes farmacodynamics and farmacokinetics. 18. Describes preparation for regional anesthesia and assissts in the procedure. 19. Describes complications of pain treatment. 20. Defines and categorize pain. 21. Describes application of local analgesics and blockage and chooses them. 22. Devides analgetics' and chooses. 23. Describes organization and exercises of acute pain treatment team. 24. Anesthesia for cesarean section (emergency, elective). 25. Differences in postresuscitative care in pregnant women and principles of cardiac arrest prevention in pregnant women. 26. Modern way of regional anesthesia. 27. Complications during and after regional anesthesia (central block). 28. Physiological changes during pregnancy; cardiovascular system, respiratory system, gastrointestinal system, genitourinary system, neurological and hematological changes. 29. Placental drug transfer. 30. Safety of chosen analgetics for the featus- recommendations. 31. Principles of anesthesia of pregnant woman for non-pregnancy related procedures. Anesthesia complications and problems in children. 32. Preoperative assessment of newborns, infants and children in Anesthetic Counselling Clinic. Principles of feeding and children premedication before surgical procedure. 33. Anatomical, physiological, pharmacodynamic and pharmacokinetic differences in newborns, infants and children. 34. Newborns, infants and children monitoring during general and regional anesthesia. 35. Types of anesthesia in children: sedation, VIMA, TIVA, regional anesthesia, combined anesthesia. Indications, contraindications, anesthetic drugs pharmacology, waking up and discharge from operating room. 36. Cardiopulmonary resuscitation. 37. Defines postresuscitative state. 38 Therapeutic hypothermia. 39. Declaring human death and cerebral death. 40. Extracorporeal treatment in ICU. 41. USG examination in anesthesiology and intensive care.

Teaching methods

Clinical classes are conducted in students' groups in operating rooms of every operating blocks of University Hospital, intensive care unit of University Hospital and ambulatory care of University Hospital: ambulatory pain treatment, ambulatory preoperative care. Classes are also conducted (or possible to conduct) in simulation center. Lectures are presented in for of multimedial presentation. Seminaries- introduction to clinical classes, cases analysis, problem resolving.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Knows and understands principles of conducting medical research, observational studies and experiments and studies in vitro	B.W29	descriptive and practical exams, discussion	Lecture
knows and understands principles of qualifications for medical procedures and invasive diagnostic procedures,	F.W03	descriptive and practical exams, discussion	- Lecture - Clinical classes

principles of the procedures, the most common complications			
can perform CPR using defibrillator and other emergency procedures; is able to perform first aid procedures	F.U10	descriptive and practical exams, discussion	Lecture - Clinical classes
knows and understands current guidelines of CPR of neonates, infants and children	F.W07	descriptive and practical exams, discussion	Lecture - Clinical classes
can assess state of unconscious patient according to international assessment scales	F.U21	descriptive and practical exams, discussion	Lecture - Clinical classes
can perform according to ALS current guidelines	F.U11	descriptive and practical exams, discussion	Lecture - Clinical classes
can monitor postoperative period according to patients vital signs	F.U12	descriptive and practical exams, discussion	- Lecture - Clinical classes
knows and understands indications and principles of ICU admission	F.W06	descriptive and practical exams, discussion	- Lecture - Clinical classes
knows and understands principles of perioperative safety, preparing patient for surgical procedure, general and local anesthesia and MOA	F.W04	descriptive and practical exams, discussion	- Lecture - Clinical classes
knows how to insert central venous catheter	F.U05	descriptive and practical exams, discussion	- Lecture - Clinical classes
knows and understands postoperative treatment with analgetics and postoperative monitoring	F.U05	descriptive and practical exams, discussion	- Lecture - Clinical classes

Assignment conditions

Preparing for clinical classes will be verified in oral or descriptive form. Final exam will be performed as test. To pass the exam student has to acquire 36 points for 60 points (60%). To attempt the exam, student has to positively end seminaries and clinical classes. The final exam is based on knowledge from lectures and clinical classes. Test grades are calculated by test results: 94-100% = 5,0, 85-93% = 4,5, 76-84% = 4,0, 68-75% = 3,5, 60-67% = 3,0, 0-59% = 2,0. The final grade is an arithmetic mean every form of subject realization. The result of arithmetic mean is estimated according to the principle: mean of 3,25 is a final grade of 3,5; mean of 3,75 is a final grade of 4,0; mean of 4,25 is a final grade of 4,5; mean of 4,75 is a final grade of 5,0. In case of absence in classes and/or failing the subject on clinical classes or seminaries, making up for the classes, the Student should discuss a term with the physician leading the class. The limit of absence in class justified by the document confirming the disease (sick leave) or a random emergency is 10h, which student is obligated to make up for in the term discussed with the physician leading the class. Justification has to be showed to the physician leading the class in 3 working days calculated from the day of the absence. Unjustified absence are equal to subject not completed.

Recommended reading

1. R. Owczuk "Anestezjologia i intensywna terapia" Warszawa 2021,wyd.1; PZWL

Further reading

2. A. Kuebler "Crash Course Anestezjologia" Worcław 2021, wyd.2; Edra Urban&Partner

Antimicrobial activities in wound infections- elective course

Course name	Antimicrobial activities in wound infections
Course ID	12.9-WL-LekAM-DPwZR
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	1
Course type	Elective
Teaching language	English/Polish
Author of syllabus	• dr hab. Katarzyna Baldy-Chudzik, prof. UZ • dr n. biol. Justyna Mazurek-Popczyk

Classes forms		
The class form	**Hours per semester (full-time)**	**Form of assignment**
Class	15	Credit

Aim of the course

The aim of the course is to acquaint students with the principles of identification, diagnosis and antimicrobial agents stewardship in wound infections as well as preventive methods of wound infections.

Prerequisites: Completed Microbiology course.

Scope: 1. Difference between wound contamination and infection; stages of infection development: colonization, local infection, spread of infection and systemic infection. The microbiome of skin and wounds. The role of bacterial biofilm in wound infections.

2. Methods of preventing the development of infection. Factors predisposing to wound infections.

3. Principles of diagnosis of wound infections; methods of collecting material for diagnostics, the role of microbiological swabs.

4. Antimicrobial treatment of wounds; the use of antiseptics and lavaseptics in wound infection, resistance to antiseptics; use of natural antimicrobials.

5. Principles of optimal antibiotic therapy, principles of using antibiotics in the treatment of wounds; antibiotic resistance, ways to reduce the development of antibiotic resistance.

6. Examples of antimicrobial activities in wound infections in clinical practice.

Teaching methods: Providing content with the use of multimedia presentations, discussion - classes adapted to the form of direct implementation and using e-learning platforms.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
interprets the results of microbiological tests	C.U10	a discussion	Class
designs schemes of rational, empirical and targeted antibiotic therapy in infections	C.U15	a discussion a test	Class
uses databases, including internet ones, and searches for the necessary information using the available tools	B.U10	a discussion	Class
knows microorganisms, taking into account pathogenic and physiological microbiota	C.W12	a discussion a test	Class

knows the symptoms of iatrogenic infections, the way they spread and the pathogens causing changes in organs	C.W18	a discussion a test	Class
basics of microbiological diagnostics	C.W19	a discussion a test	Class
knows the problem of drug resistance, including multi-drug resistance	C.W40	a discussion a test	Class

Assignment conditions

The condition for passing the course is to present a clinical case and discuss therapeutic options. During the course, one excused absence is allowed, which must be made up in writing or orally, within the time limit agreed with the teacher.

Recommended reading

1. Kramer A, Dissemond J, Kim S, et al. Consensus on Wound Antisepsis: Update 2018. *Skin Pharmacol Physiol*. 2018;31(1):28-58.

2. Lipsky BA, Dryden M, Gottrup F, Nathwani D, Seaton RA, Stryja J. Antimicrobial stewardship in wound care: a Position Paper from the British Society for Antimicrobial Chemotherapy and European Wound Management Association. *J Antimicrob Chemother*. 2016;71(11):3026-3035.

Further reading

1. European Wound Management Association publications: https://ewma.org/

Basics of health training for people of different ages

Course name	**Basics of health training for people of different ages**
Course ID	12.0-WL-LekAM-PTZORW
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. Mariusz Naczk, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Practical classes	30	Credit with grade

Aim of the course

For several decades, there has been a visible trend of decreasing human everyday physical activity related to the production of goods, work and traveling. The negative effects of akinesia are obesity (with its numerous health consequences), degradation of the locomotor system; both skeletal and muscular system, numerous pathologies in many human body systems. In addition, an aging and lack of physically activity in society poses a major challenge for the health service. One of the best ways to counteract the above-mentioned consequences of the current lifestyle is health training. The objectives of the course are: equipping students with the knowledge and skills to recognize system deficits related to akinesia, teaching the student with selected training methods and the physiological consequences of their use, providing knowledge in the field of planning and implementation of selected forms of strength and endurance training. After completing the course, the student will be able to plan the health training of various people and will be able to verify the technique of the performed exercises, as well as objectively assess the effectiveness of the used training methods.

Prerequisites: Knowledge in the field of functional anatomy and human physiology.

Scope:

1. Human physical activity in the modern world against the background of evolution and its importance for health.
2. Kinds of physical effort and the influence of particular types of effort on selected human body systems.
3. Sources of energy for physical exercises.
4. Fitness assessment using simple physiological tests.
5. Obesity and its physiological consequences.
6. Assessment of human body components using the bioimpedance method.
7. Basics of health training; principles and components of training.
8. Endurance training, traditional concepts and innovations. Physiological consequences of training. Fat reducing training.
9. Strength training: circuit method and bodybuilding method.
10. The technique of selected strength exercises.
11. Strength training: the inertial method.
12. Physiological consequences of strength training.

13. Fitness tests dedicated to elderly people and people with low endurance.
14. Strength training for children and the elderly.
15. Forms of physical activity dedicated to elderly.

Teaching methods: Practical classes, lectures in the form of multimedial presentations, discussion, brainstorming, Learning outcomes and methods of theirs verification.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student is able to provide advice concerning therapeutic recommendations and a healthy lifestyle;	D.U09	activity during classes discussion final test	practical exercise
The student is able to describe changes in the functioning of the body in the event of a homeostasis disorder, in particular to define its integrated response to physical effort	C.U20	activity during classes final test	practical exercise
The student is able to perform simple functional tests assessing the human body as a stable regulation system (stress tests, exercise tests) and to interpret	B.U07	activity during classes final test	practical exercise
The student knows the principles of health promotion, its tasks and main directions of action, with particular emphasis on the knowledge of the role of the healthy lifestyle	D.W14	activity during classes discussion final test	practical exercise

Assignment conditions

The condition for passing the course is the presence of the student in the class and obtaining a positive final grade for the final test. In the event of absences from the classes, the student is required to fill in the gaps within the time limit agreed with the teacher, which is a condition for being admitted to the final test. If the resulting deficiencies are not corrected by the Student by the date of the final test, the Student will not complete the course on the first credit date, which does not exempt him from the need to supplement the deficiencies. If the deficiencies are not supplemented with the retake dates, the Student will not pass the course on these dates as well. Exceeding 30% of absences will result in the inability to complete the course - the student will not be classified. To obtain a credit for the course, the student must obtain more than 60% of the points in the final test.

Recommended reading:

ACSM'S Resources for the Health Fitness Specialist. Lippincott Williams & Wilkins, 2014
Bushman B. ACSM. Complete Guide to Fitness & Health.Human Kinetics, 2011.

Basics of sign language for doctors- elective course

Course name	- Basics of sign language for doctors
Course ID	12.9-WL-LEK-PWPJML
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	7
ECTS credits to win	2
Course type	elective
Teaching language	Polish/English
Author of syllabus	dr Katarzyna Kochan

The class form	**Hours per semester (full-time)**	**Form of assignment**
Classes	30	Credit with grade

Aim of the course

Prepare students to communicate with deaf people, including: basic concepts related to deafness, issues of the deaf community (i.e. educational, professional and social situation); methods of communication between people with hearing impairment, dactylographic signs - with the alphabet, numerals; selected ideographic signs.

Prerequisites: Dexterity of both hands.

Scope

1.The situation of deaf people in Poland.
2. Basic concepts related to deafness.
3. Dactylographic signs - Polish sign alphabet, signs of numerical concepts - cardinal and ordinal numbers.
4. Ideographic signs -blocks: the patient and his immediate surroundings; admission to hospital diseases and their symptoms.

Teaching methods

Lecture, exercise method.

Learning outcomes and methods of theirs verification

Outcome description	**Outcome symbols**	**Methods of verification**	**The class form**
the importance of verbal and non-verbal communication in the process of communicating with the patient and the concept of trust in interaction with the patient	D.W06	test sing dictation	Classes
conduct a conversation with an adult patient, child and family using the technique of active listening and expressing empathy and talk to the patient about his life situation	D.U05	test role play	Classes
knows the rules and methods of communication with the patient and his family, which are used to build an empathic, trust-based relationship		sing dictation test	Classes

Assignment conditions

Classes - the condition for obtaining credit is positive grades from all classes planned for implementation under the program. The following are assessed: tests checking knowledge and practical skills. In the event of absences, the student should fill in the deficiencies within the time limit agreed with the teacher.

The student makes up for the absences with another group or during the consultation hours with the teacher. Practical learning outcomes are checked through the student's observation and ongoing control during classes. The permissible limit of excused absences is 4 teaching hours.

The regulations on the conditions for passing a credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the necessity to switch to remote credit during the regulatory period, before the start of the session.

Other not mentioned regulations are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Szczepankowski B., Język migowy. Pierwsza pomoc medyczna, Warszawa 1996.
2. Hul K., Polak E., Kijowska M., Jackowicz A., Język migowy medyczny. Ratownictwo medyczne, Rzeszów 2015.
3. Sitko-Gut J., Język migany w medycynie. Częstochowa 2015.
4. Szczepankowski B., Wyrównanie szans osób niesłyszących, Warszawa 2001.
5. Szczepankowski B., Komunikowanie się z osobami z uszkodzonym słuchem. Poradnik dla pracowników służb społecznych, Warszawa-Krapkowice 2000,
6. Szczepanowski B., Koncewicz D., Język migowy w terapii, Łódź 2008,
7. Szczepankowski B., Niesłyszący – głusi – głuchoniemi. Wyrównywanie szans, Warszawa 1999.

Basics of speech therapy- elective course

Course name	**Basics of speech therapy - Elective course**
Course ID	12.0-WL-LekAM-BST
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	2
Course type	Elective
Teaching language	English/Polish
Author of syllabus	dr hab. Ewa M. Skorek, prof. UZ

The class form	Hours per semester (full-time)	Form of assignment
Classes	30	Pass without grade

Aim of the course

Acquainting with selected speech therapy issues: speech and its disorders, typologies of speech disorders, characteristics of selected speech disorders, methods of diagnosis and speech therapy, issues of pediatric speech therapy and gerontology, speech therapy prophylaxis - models and strategies.

Prerequisites: Knowledge of the anatomy and physiology of speech organs and the structure of the human central nervous system.

Scope:

1. Introduction to speech therapy: a) historical outline of the development of speech therapy in Poland and in the world, b) precursors of Polish speech therapy (Jan Siestrzyński, Wladyslaw Ołtuszewski, Benedykt Dylewski, Leon Kaczmarek), c) concepts of speech therapy, d) subject of speech therapy and specializations, e) explanation of basic concepts: speech, speech disorders, speech impediments, f) speech formation. 2. Selected classifications of speech disorders: ICD-10, DSM-IV, symptomatic classification, causal classifications, terminological dilemmas. 3. Diagnosis and speech therapy: procedure and rules. 4. Characteristics, diagnosis and therapy of selected speech disorders: dyslalia, stuttering, delayed speech development, oligophasia, dysarthria, aphasia, dysphonia, schizophasia. 5. Supporting the development of speech in children at risk (deaf, hard of hearing, deaf-blind children, with emotional disorders, with intellectual disability). Speech disorders in genetically determined diseases (Cornelia de Lange syndrome, Angelman syndrome, Cat scream syndrome, Fragile X chromosome syndrome, Williams syndrome, Prader-Willi syndrome and others). 6. Speech disorders in neurodegenerative diseases (Alzheimer's disease, Parkinson's disease, etc.). Primary Progressive Aphasia. 7. Health promotion and prophylaxis in speech therapy: prophylaxis models, levels, strategies, risk and protection factors..

Teaching methods: Working with a source document, case method, group work.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form

The student is able to give advice on compliance with therapeutic recommendations and a healthy lifestyle	D.U0 9	written work ; an ongoing monitoring during classes	Classes

Assignment conditions

The condition for passing the course is active participation in classes and a positive completion of a written work on a selected speech disorder (agreed during classes) in the field of prophylaxis, diagnosis and therapy. Limit of excused absences: 2. The arrears resulting from excused absences should be made up by the student within 14 days during the consultation (dates are available on the Collegium Medicum website) - it is necessary to pass the material on a given topic and complete the task carried out during the classes during which the Student was absent. In the case of 3 or more justified absences, the course coordinator decides the method of crediting.

In matters not covered by the regulations, decisions are made by the person responsible for the subject, based on the Regulations of Studies at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow.

Recommended reading

1. Gałkowski T., Jastrzębowska G. (red.), Logopedia: pytania i odpowiedzi: podręcznik akademicki, t. 1 i 2, Opole 2017.
2. Skorek E.M., Wielowymiarowość przestrzeni profilaktyki logopedycznej, Zielona Góra, 2017

Biomechanics - elective course

Course name	**Biomechanics**
Course ID	16.1-WP-P-Biom-S20
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	4
Course type	Elective
Teaching language	English/Polish
Author of syllabus	dr hab. inż. Katarzyna Arkusz, prof. UZ

The class form	**Hours per semester (full-time)**	**Form of assignment**
Laboratory	30	Credit with grade

Aim of the course

The course aims to familiarize students with the basic issues of engineering biomechanics, including movement, and methods of research and support of the human musculoskeletal system, as well as acquire skills in determining the biomechanical properties of tissues and defining measures supporting the dysfunction of the musculoskeletal system. Understanding the concepts of remodeling of tissue structures.

Prerequisites: Human anatomy and physiology. Basic knowledge of material mechanics and statistical data analysis methods.

Scope:

Seminar classes:

Biomaterials: classification, structure and properties of biomaterials, elastic and plastic deformations, modification of biomaterials to improve bioacceptability. Particular emphasis will be placed on discussing the properties and modification of surface layers in accordance with the research carried out at the Department of Biomedical Engineering as part of the projects, incl. Preparation and characterization of self-assembling oxide nanomaterials on titanium implant alloys (N507 082 31/2009).

The essence of biomaterial/tissue interactions in terms of biotolerance. Cell reaction to the implant: inflammation, repair process, biocompatibility with blood, carcinogenicity. Methods of assessing the biological reaction.

Human skeletal and muscular systems. Kinematics of the musculoskeletal system. Basic strength parameters, mechanical and physical properties of selected tissue structures. Biotribology, friction, types of friction in biolearing. Elements of bionics and biomimetics. Tissue structures as biomaterials.

Knee joint: structure, kinematics and biomechanics, basic limb axes, load models, dysfunctions and treatment of dysfunctions, knee arthroplasty.

Hip joint: hip anatomy, joint elements, kinematics and biomechanics, loading models, dysfunctions, hip arthroplasty.

Spine: basic functions, anatomical elements of the spine and basic geometric parameters of the body position, spine models, kinematics and biomechanics, overloads and instability/stability, main dysfunctions and methods of spine treatment, spine implantology.

Long bones: anatomy, external fixation, characteristics of the structure of external fixators, external fixation in the treatment of fractures and limb lengthening.
Biomechanical overview of the remaining joints: anatomy of the joints of the hand, shoulder and elbow joints, alloplasty and characteristics of the construction of prostheses / supporting implants. Methods of research on tissue structures and implants.
The content of the laboratory classes:
The classes will be carried out at the Biomechanics Laboratory and the Medical Device Prototyping Laboratory operating at the Department of Biomedical Engineering in the form of the following exercises: Testing and evaluation of mechanical/strength properties of implant tissues/components in static tests: stretching, compression and bending. Investigation and evaluation of the biomechanical properties of the implant-bone connection. Statistical analysis of the obtained results. Identification of selected implants and surgical instruments - evaluation of functions, construction description, and installation methods analysis. Classes will be held, among others, with the use of the latest GOM optical system for the analysis of human movement.

Teaching methods: Presenting the content of the seminar exercises using multimedia presentations. During laboratory classes - teamwork (mainly teams of 2 to 4 people) using dialysis equipment and an artificial pancreas.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student is aware of the importance of issues related to the biomechanics of the musculoskeletal system in treatment and rehabilitation as well as in everyday human functioning.	B.W29	• preparation of laboratory reports	Laboratory
knows and understands the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine		• preparation of laboratory reports	Laboratory
Student can prepare a sample / preparation for research, plan and carry out experiments / measurements in the field of biomechanics, can use analytical and experimental methods to solve research problems, have the ability to interpret the results of laboratory exercises and draw conclusions		• preparation of laboratory reports	Laboratory
Student is able to test basic functional quantities, knows the basic definitions of the biomechanics of the human musculoskeletal system, can describe the structure of the musculoskeletal system and define the concepts of system dysfunctions, their treatment with the use of a biostabilizer		• an evaluation test	Laboratory
Student is able to acquire and integrate the obtained information on the biomechanics of the human musculoskeletal system from literature, databases and other sources, also in a foreign language, and to interpret and		• an evaluation test	Laboratory

compile them, as well as to identify selected implant elements and surgical instruments			
can characterize selected elements of the human musculoskeletal system (bones, joints), define their function, anatomy, kinematics and tribology of joint joints and describe the biomechanical stress model; has knowledge of the strength properties of tissues (mainly bones) and the basic methods of testing tissues and biomechanical systems with the use of research and measurement equipment		• preparation of laboratory reports	Laboratory
has knowledge in the field of biomechanics of the human bone and muscular system, implant-bone connection, state of stress / displacement in an external stabilizer (bar or plate), implant loads, forces of fixing implants in the bone, as well as development trends in medical technologies, methods of assessing their biofunctionality		• an evaluation test	
Student is able to interact in a group, assuming different roles in it (e.g. patient-doctor)		• preparation of laboratory reports	

Assignment conditions

The pass mark for the course is a written test in the form of a test (40 single-choice questions). Passing the course is possible after giving correct answers to min. 60% of the test questions.
The student may have a maximum of two absences, which he is obliged to justify within five days and is obliged to make up for them within the time agreed with the tutor.
The regulations on the conditions for passing the credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the necessity to switch to the remote credit during the regulatory period, before the session begins.
Other conditions are specified in the Regulations of Studies at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Jerrod H. Levy, Biomechanics: Principles, Trends and Applications, Nova Science, 2009

Clinical Laboratory Science

Course name	Clinical Laboratory Science
Course ID	12.8-WL-LEK-DLA
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	4
ECTS credits to win	6
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Hanna Hołysz, MS, PhD

Forms of classes

Form of classes	Hours per semester (full-time)	Form of assignment
Lecture	30	Exam
Laboratory	45	Credit with grade

Aim of the course

The aim of the subject of Laboratory diagnostics is to familiarize the student with the principles of the work of a medical diagnostic laboratory and the possibilities of laboratory diagnostics in the differentiation of health and disease. Moreover, during the course, the student will acquire knowledge and skills related to the correct selection of laboratory tests necessary to diagnose and monitor the most common organ and systemic disorders. He will also acquire knowledge related to the proper preparation of the patient for laboratory tests and the correct interpretation of the obtained test results. The skills of cooperation between a doctor and employees of a medical diagnostic laboratory will also be developed.

Prerequisites: Before starting the laboratory diagnostics classes, the student should have knowledge of biochemistry, anatomy, physiology, histology with cytophysiology, as well as pathophysiology of diseases.

Scope

1. Types of laboratory tests performed, their diagnostic significance and causes of pre-analytical, analytical and post-analytical errors.
2. The type of optimal biological material depends on the type of diagnostic tests, rules of its collection, transport and storage.
3. Laboratory diagnostics of organ and systemic disorders.
4. Laboratory diagnostics of hematological diseases and hemostatic disorders.
5. Laboratory diagnostics of body fluids and excreta
6. Diagnostics of carbohydrate, lipid and protein metabolism disorders.
7. Disorders of water-electrolyte and acid-base balance.
8. Diagnostics of metabolic diseases.
9. Diagnostics of diseases of the genitourinary system.
10. Diagnostics of male and female infertility and the use of laboratory tests in pregnancy monitoring
11. Diagnostics of cardiovascular and respiratory system diseases.
12. Biochemical diagnostics of neoplasms.
13. Diagnostics of hormonal disorders.
14. Diagnostics of poisoning and treatment monitoring therapy.
15. Inflammation parameters.

16. Laboratory diagnostics in emergencies.
17. The use of modern diagnostic methods in the diagnostics of genetically determined diseases.

Teaching methods
The topics will be implemented during lectures and exercises. Lectures will be conducted during the 4th semester in the form of presentations with the use of multimedia techniques. Classes will be conducted in a diagnostic laboratory in groups of 8-10 people, with practical learning of methods of collecting and securing material for research, material development and equipment possibilities.

Learning outcomes and verification methods for achieving learning outcomes

Outcome description	Outcome symbols	Methods of verification	Form of classes
Knows and understands the theoretical and practical foundations of laboratory diagnostics	• E.W40	• discussion • test	• Lecture • Laboratory
Knows and understands the principles of diagnosing the most common diseases of children (test panels and parameters / markers that can be determined): anemia, bleeding disorders, childhood cancer, vomiting, diarrhea, gastrointestinal bleeding, peptic ulcer disease, cholestasis and liver diseases, urinary tract infections, kidney stones, acute and chronic renal failure and acute and chronic nephritis, growth disorders, thyroid and parathyroid diseases, adrenal gland diseases, diabetes, obesity.	• E.W07	• discussion • test	• Lecture • Laboratory
Knows and understands the types of biological materials used in laboratory diagnostics and the principles of collecting material for research.	• E.W39	• discussion • test	• Lecture • Laboratory
Can recognize the condition after consuming alcohol, drugs and other stimulants (based on the results of laboratory tests).	• E.U15	• discussion • test	• Lecture • Laboratory
Knows and understands the environmental conditions of the most common human cancers.	• E.W23	• discussion • test	• Lecture • Laboratory
Knows and understands the basics of early cancer detection and the principles of screening in oncology.	• E.W24	• discussion • test	• Lecture • Laboratory
Knows and understands the principles of diagnosis in the most common bacterial and viral diseases (determinable parameters / markers).	• E.W34	• discussion • test	• Lecture • Laboratory
Is able to carry out the differential diagnosis of the most common diseases of adults and children.	• E.U12	• discussion • test	• Lecture • Laboratory
Is able to recognize life-threatening conditions (based on the results of laboratory tests).	• E.U14	• discussion • test	• Lecture • Laboratory
Knows and understands the principles of diagnosis in relation to the most common internal diseases occurring in adults (test	• E.W03	• discussion • test	• Lecture • Laboratory

panels and possible parameters / markers), cardiovascular diseases, digestive system diseases, including: diseases of the oral cavity, esophagus, stomach and duodenum, intestines, liver , biliary tract and gall bladder, endocrine system diseases, including diseases of the hypothalamus and pituitary gland, thyroid gland, parathyroid glands, adrenal cortex and medulla, various types of diabetes and metabolic syndrome: hypoglycaemia, obesity, dyslipidaemia, kidney and urinary tract diseases, including : acute and chronic renal failure, glomerular and interstitial kidney diseases, kidney stones, urinary tract infections, hematopoietic system diseases, including: hemorrhagic diathesis, water-electrolyte and acid-base disorders:states of dehydration, hyperhydration states, electrolyte disturbances, acidosis and alkalosis.			
Knows and understands the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine.	• B.W29	• discussion • test	• Lecture • Laboratory
Knows and understands the possibilities and limitations of laboratory tests in emergencies.	• E.W41	• discussion • test	• Lecture • Laboratory
Knows and understands the indications for the implementation of monitored therapy.	• E.W42	• Test exam with thresholds pointers	• Lecture
Is able to interpret laboratory tests and identify the causes of deviations.	• E.U24	• an observation and evaluation of activities during the classes	• Laboratory
Can perform simple medical procedures and procedures, including: simple strip tests and blood glucose measurement.	• E.U29	• ongoing control in classes • discussion • test	• Laboratory

Assignment conditions

The condition for passing the exercises is the presence, active participation in all exercises and obtaining positive marks from two partial tests from exercises 1-6 (test No. 1) and 7-14 (test No. 2) as well as obtaining a positive mark for the practical test. The student must complete all the classes provided in the program. Two excused absences from laboratory classes are allowed. The absence should be justified with an appropriate document confirming the illness (sick leave) or a random accident - at the person conducting the classes or at the course coordinator within 5 days from the date of the end of the absence. Recognizing the justification entitles you to make up for a given classes within the time limit and in the form set by the teacher responsible for a given classes. Unexcused absences mean the inability to complete the classes.

The student's practical skills will be checked during the practical test. In the event of a failing grade, the Student has the right to 1 improvement of the practical pass. The date of improvement is set by the lecturer with the Student or the Starost of the year. In the event of a justified absence of the Student during the practical test, the Student has the right to proceed with the test on the date agreed with the Student or the Starost of the year. The final grade for the classes is calculated on the basis of the arithmetic mean of 2 grades from partial tests and the practical test. The student has the right to correct each unsatisfactory grade obtained during the partial tests twice. If the Student fails to pass the partial tests, he / she has the right to take the final initial test covering the entire material discussed in the classes. The student has the right to correct this test once in the event of failure. Partial tests will be in the form of a test (closed questions with a single choice). The retake will be either a test or a descriptive one. In the event of failure to take the set deadline for the final test, the Student receives an unsatisfactory grade. In the case of failing grades for partial tests, practical pass or final test, the student does not obtain credit for the classes and cannot take the final exam, which results in an unsatisfactory grade.

Final exam: The condition for taking the final exam is attendance at the lectures and obtaining credit for the classes. The final exam will be in the form of a test and will consist of 60 closed questions, single choice, covering the topics discussed during all forms of classes. The student has the right to correct the final exam once. The retake exam will be either a test or a descriptive exam. The Student's absence during the final examination must be excused with an appropriate document confirming an illness (sick leave) or a random accident - at the course coordinator within 3 days from the date of the examination. Recognition of the excuse entitles you to take the exam, which will be considered to be taken on the first date, in the test or descriptive form. Failure to recognize the excuse will result in the Student receiving an unsatisfactory grade on the first date of the exam. Two excused absences during the examination are allowed. Another absence will result in the Student getting a fail grade.

Pass threshold: the threshold for obtaining a positive mark for partial tests of exercises and final exam is 60%. The grades will be converted according to the scale:

94-100% = 5.0; 85-93% = 4.5; 76-84% = 4.0; 68-75% = 3.5; 60-67% = 3.0; 0-59% = 2.0

Final grade: The final grade will result from the weighted average calculated on the basis of the final grade for the exercises (40%) and the theoretical exam grade (60%). The results of the weighted average (final grade) are determined in accordance with the principle: mean 3.25 - 3.74 is the final grade of 3.5; mean 3.75 - 4.24 is the final score of 4.0; mean 4.25 - 4.74 is the final score of 4.5; the mean of 4.75 is the final score of 5.0. The regulations on the conditions for passing the credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the need to switch to the remote credit during the regulatory time, before the start of the session.

Recommended reading

1. Tietz Textbook of Laboratory Medicine, Nader Rifai, 7th Edition, 2022
2. Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics, David E. Bruns, Carl A. Burtis, Elsevier LTD, Oxford; 7th edition
3. Fundamentals of Urine and Body Fluid Analysis, Nancy A. Brunzel, 3-rd Edition, Elsevier

Supplementary literature

1. Clinical Biochemistry: An Illustrated Colour Text, 4e 4th (fourth) Edition by Stewart PhD FRCPath, Michael J., Shepherd MD, James, Gaw MD published by Churchill Livingstone (2008)
2. Scientific articles in the field of laboratory diagnostics available in databases provided by the Library of the University of Zielona Góra.

Clinical nutrition- elective course

Course name	**Clinical nutrition- elective course**
Course ID	12.0-WL-LEK-PWŻK
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	2
Course type	Elective
Teaching language	English/Polish
Author of syllabus	Ph. D.in Pharm. Karolina Kieres

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	30	Credit

Aim of the course: Obtaining the necessary knowledge to determine the scope and nature of nutrition in disease states requiring specialized nutritional therapy, learning the principles of planning and using diets in diet-assisted treatment, goals of using nutritional therapy in specific clinical units, explaining the mechanisms of adverse reactions to food, recognizing and understanding the pathophysiology of allergic diseases

Prerequisites: Knowledge of the primary nutrients and nutrients of food, knowledge of drug interactions with food

Scope of the subject: Basics of clinical nutrition.

Principles of feeding a sick person. Practical tips for feeding a sick person.

1. Principles of nutrition in diseases of the gastrointestinal tract, liver disease and bile ducks. Nutrition in diseases of the oral cavity
2. Principles of nutrition in cardiovascular diseases. Nutrition in hyperlipidemia . Principles of nutrition in diseases of the hematopoietic system. Dietoprophylaxis and dietotherapy of complications of atherosclerosis
3. Principles of nutrition in diseases of the urinary system. Nutrition in urate diathesis. Feeding an unconscious patient.
4. Principles of nutrition in food allergies, bronchial asthma and viral infections. Protein-energy malnutrition and the efficiency of the immune system. Nutrition in metabolic diseases. Diet for the prevention and treatment of osteoporosis.
5. Principles of nutrition in eating disorders and metabolic diseases.
6. Enteral and parenteral nutrition: indications, contraindications, feeding techniques, complications. Substrates suitable for enteral and parenteral nutrition.
7. Drug-food interactions. Adverse reactions to food.
8. Primary diseases against the background of nutritional deficiencies and the principles of nutrition in cancer.
9. Development of individual nutritional recommendations in hospitalized patients with selected food diseases (diseases of the digestive system, urinary system, circulatory system.
10. Development of individual nutritional recommendations for hospitalized patients with food intolerance or allergy.

11. Guidelines for nutritional management in the preoperative, intraoperative and postoperative periods. The role of immunonutrition in surgery. Development of individual dietary assumptions for a patient hospitalized in a surgical ward.

Methods of education: Methods giving (multimedia presentation), problem (discussion of clinical cases), activating (discussion, paper)

Learning outcomes and methods of verification of achieving learning outcomes:

Outcome description	Outcome symbols	Methods of verification	The class form
knows the consequences of improper nutrition, including prolonged starvation, taking too abundant meals and using an unbalanced diet	B.W19	a discussion; activity during the classes; an evaluation test	Labs
knows the consequences of vitamin or mineral deficiency and their excess in the body	B.W20	a discussion; activity during the classes; an evaluation test	Labs
uses pharmaceutical guides and databases on medicinal products	C.U17.	a discussion; activity during the classes; an evaluation test	Labs
use nutritional treatment (including enteral and parenteral nutrition)	E.U25	a discussion; activity during the classes;	Labs

Assignment conditions:
A written single-choice test. In cases of absence, the student should catch up on gaps within the time agreed with the lecturer.
Final grade is the arithmetic mean of all the forms envisaged for the realization of the object. The results of the arithmetic mean are determined according to the principle: an average of 3,25 is a final grade of 3,5; an average of 3.75 is a final grade of 4.0; an average of 4.25 is a final grade of 4.5; an average of 4.75 is a final score of 5.0

Basic literature:

1. Basics of clinical nutrition. (red.) Sobotka L., 2019, Galen,spol.s.r.o
2. Basics of nutrition and dietotherapy. Peckenpaugh N., 1999, ISBN-0-7216-7707-
3. Standards of parenteral and enteral nutrition) Pertkiewicz M., Korta T., 2005, PZWL, Warszawa

Supplementary literature:

1. Journals available in the University Library of the University of UZ, digital databases – medical sciences and health sciences; http://www.bu.uz.zgora.pl/

Clinical Pharmacology

Course name	Clinical Pharmacology
Course ID	12.5-WL-LEK-FKL
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	10
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Sylwia Michalak

The class form	**Hours per semester (full-time)**	**Form of assignment**
Lecture	15	graded assignment
Clinical classes	15	graded assignment

Aim of the course

The aim of the course is to combine basic information in the field of pharmacology with clinical aspects and individual clinical situations. The purpose of teaching is acquiring knowledge about therapeutic possibilities in relation to specific disease entities and clinical situations, basing on Evidence Based Medicine, the need for individualization of pharmacotherapy and pharmacoeconomical aspect. The aim is also to learn how to obtain and critically interpret information about drugs, and to familiarize student with the latest scientific achievements in clinical pharmacology. Acquisition by the student of basic skills necessary in conducting clinical research and the integration of academic knowledge and skills with scientific evidence. Clinical classes are designed to teach the student to implement the therapy in accordance with Good Clinical Practice taking into account the effects of drugs, side effects, drug interactions, in presence of pathological processes.

Prerequisites: Knowledge of physiology, patophysiology, genetics, toxicology, propaedeutics of internal diseases, propaedeutics of pediatrics

Scope:

Lectures

1. Basics of clinical pharmacology. Clinical pharmacocinetics.
2. Adverse drug reactions. Reporting drug-induced complications.
3. Drug interactions. Pharmaceutical incompatibilies.
4. Individualized therapy in children and the elderly. Pharmacotherapy optimization during pregnancy and breastfeeding.
5. Disturbances in the drug action due to pharmacocinetics changes in pathological states.
6. The influence of drugs on the results of laboratory tests. Monitored pharmacotherapy.
7. Planning and conducting clinical trials in accordance with the principles of Good Clinical Practice.
8. Pharmacogenetics. Pharmacoeconomics. Social pharmacology.

Clinical classes – clinical pharmacology in practice:

1.Pharmacotherapy of acute coronary syndromes, acute heart failure, arrhythmias
2. Pharmacotherapy of hypertension, chronic coronary syndromes, hyperlipidemia.

3. Pharmacotherapy of pain in various clinical situations, various age groups, pregnancy and during the breastfeeding.
4. Pharmacotherapy of diabetes.
5. Pharmacotherapy of various type of anemia.
6. Pharmacotherapy of selected chronic diseases.

Teaching methods: Lectures - multimedia presentations. Clinical classes - analysis of clinical cases and the choice of proper therapy by students. Discussion.

Learning outcomes and methods of verification of achieving learning outcomes:

Outcome description	Outcome symbols	Verification methods	Form of classes
The student is able to propose the individualization of the applicable therapeutic guidelines and other methods of treatment due to ineffectiveness or contraindications to standard therapy.	E.U17	-ongoing control during classes -discussion -oral answer	Clinical classes
The student is able to interpret the pharmaceutical characteristics of drugs and critically evaluate advertising material about drugs.	E.U31	-ongoing control during classes	Clinical classes
Causes, symptoms, principles of diagnosis and therapeutic management in regard to the most common internal diseases in adults.	E.W07	-ongoing control during classes -oral answer -test	Clinical classes
The student is able to analyze possible side effects of drugs and their interactions.	E.U17	-active participation -discussion -written descriptive/test, practical examination -discussion	Lecture Clinical classes
The student knows and understands the basic principles of pharmacotherapy in elderly.	E.W10	-discussion -oral answer -written descriptive/test, practical examination	Lecture Clinical classes
The student is able to recognize the symptoms of drug dependence and propose treatment.	E.U19	-active participation -discussion -test	Clinical classes
The student is able to monitor the condition of a patient poisoned with chemicals or drugs.	E.U34	-active participation -discussion -test	Clinical classes

Assignment conditions

Lectures: Participation in lectures is obligatory. Lectures end with a written test (30-60 single and/or multiple choice test). It is necessary to obtain at least 60% of the points to receive a positive grade. In case of failure to obtain a positive grade, make-up tests are carried out in oral or written form, after informing the student in advance. Clinical classes are conducted in the form of thematic blocks. Preparation for classes is verified in oral or written form. Each failed test may be corrected

up to three times. The final grade is the arithmetic mean of all grades obtained during clinical classes.
The student should make up for absences from lectures or clinical classes with another group or during the consultation hours with the teacher. Absences shouldn't be exceed 10 percent of the hours allocated to a given type of activity. The justification (medical leave or document confirming the fortuitous event) should be presented to the teacher within 3 working days of the incident. Unexcused absences mean the inability to complete the course.
The test tests are assessed as follows: grade 3.0: 60-69% of correct answers, grade 3.5: 70-79% of correct answers, grade 4.0: 80-89% of correct answers, grade 4.5: 90-95% of correct answers, grade 5.0: 96-100% of correct answers.
The final grade is the arithmetic mean of the grade from the lecture and clinical classes. The results of the arithmetic mean are determined in accordance with the principle: mean 3.25 is the final grade 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Recommended reading

1. Basic and Clinical Pharmacology 15e; Bertram Katzung, Anthony Trevor; McGraw-Hill Education / Medical 2021; ISBN: 9781260452310
2. Clinical Psychopharmacology Principles and Practice; S. Nassir Ghaemi; OUP USA
ISBN: 9780199995486

Supplementary literature

Clinical Pharmacology with student consult access; Peter N. Bennett, Morris J. Brown, Churchill Livingstone 2007, ISBN: 9780443102448

Cytophysiology

Course name	Cytophysiology
Course ID	12.8-WL-LekAM-C
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	2
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	prof. dr hab. n. med. Maciej Zabel

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Seminar	15	Credit with grade

Aim of the course

The aim of this subject is to familiarize students with the structure of specialized cells in the human body, taking into account the functions of individual organelles and their importance for the cell and the whole organism. Particular emphasis is placed on integrating knowledge of basic disciplines with clinical sciences and linking issues of cell biology with practical problems of medicine, including understanding cellular, subcellular and molecular diagnostic and therapeutic strategies, mechanisms of drug action and regenerative capacities of the body.

Prerequisites: The student should have a basic knowledge of mammalian cell structure.

Scope

The cell cycle and its regulation, senescence, and apoptosis

The cell cycle: definition, course, regulation and methods of study. Phases of the mitotic cycle and mechanisms of its regulation. Proliferative diseases. Cell growth and differentiation. Stem cells (types, potential capabilities, and application in medicine).

1. Cellular senescence: causes and symptoms. Progerias.
2. Cell death: necrosis, apoptosis and autophagy. Course, stimulating and inhibiting factors, and importance in medicine.

Basics of immune defense

Basic concepts: antigen; cytokines (lymphokines; interleukins, monokines), MHC; target cell and effector cell; types of immunity; types of antibodies. Innate (non-specific) immunity - phagocytic cells, PRR, TLR, humoral factors, complement. Acquired (specific) immunity - T, B and NK lymphocytes, role of MHC and dendritic cells (APC), cellular and humoral immunity, immune memory. The importance of immunization. The immune system in pathology, including allergic, autoimmune, inflammatory and cancerous diseases.

Carcinogenesis

Molecular mechanism of carcinogenesis. Importance of mutated genes - protooncogenes and oncogenes, suppressor genes, mutator genes and apoptosis regulating genes.

Mutagenic agents and types of gene mutations. Example mutations (Rb and P53) and their significance. Basic disorders of cancer cells. Telomerase. Clonal development of cancer and a model

example of malignant tumor development (colorectal cancer). Immune defenses and cancer formation. Cancer treatment methods.
Endothelial and myocardial cytophysiology. Angiogenesis. Cell adhesion and its importance in physiology and pathology.
Structure and function of the endothelium. Nitric oxide synthesis in endothelial cells, endothelin function. Endothelial dysfunction. Arteriosclerosis (stable and unstable atherosclerotic plaques). Effects of atherosclerotic plaque rupture.
Structure of cardiac muscle cells and mechanism of their contraction. Electromechanical coupling. Cardiac ventricular remodeling in response to overload.
Angiogenesis in physiology and tumorigenesis.
Adhesion molecules and components of intercellular substance: selectins, integrins, cadherins, immunoglobin superfamily.
Role of CAMs in nervous system development, cancer and inflammatory process.
Application of cell biology research in medicine. Revision of the structure and function of cells to apply this knowledge to medical diagnosis and advanced forms of therapy.
Methods of cell preparation for testing: cell isolation, homogenization, cell culture.
Molecular studies of homogenates; isolation of nucleic acids and proteins. *In situ* molecular studies: nucleic acid hybridization and protein immunocytochemistry. Applications of nucleic probes, poly- and monoclonal antibodies, and polyclonal probes.
Specialized methods of DNA and RNA study commonly used in medical diagnostics and science: sequencing, microarrays, PCR and its variants (RT- PCR).
Specialized methods of protein testing: quantitative protein assays: RIA and ELISA; genetic labeling and flow cytometry.
Microscopic studies: light and electron microscopes and their types.

Teaching methods: Seminars conducted using a computer-microscope network, synchronized with microscopic images, diagrams and examples to be solved - the student solves the presented tasks independently, in interaction with the teacher. Introductory topics are presented in the form of multimedia presentations and provide a theoretical introduction to selected issues, with the students then independently analyzing and solving problem tasks.

Learning outcomes and verification methods

Outcome description	**Outcome symbols**	**Verification methods**	**Form of classes**
knows and understands the basics of stem cells and their use in medicine;	B.W19	observation and evaluation of in class activity; oral exam; solving of multimedia-based problem tasks	Seminar
knows and understands the mechanisms of aging	B.W23	observation and evaluation of in class activity; oral exam; solving of multimedia-based problem tasks	Seminar

knows and understands the rules of conducting basic, observational, and experimental studies, as well as in vitro research serving the development of medicine	B.W29	observation and evaluation of in class activity; oral exam; solving of multimedia-based problem tasks	Seminar
knows and understands the basics of development and mechanisms of action of the immune system, including innate and acquired mechanisms of cellular and humoral immunity.	C.W21	observation and evaluation of in class activity; oral exam; solving of multimedia-based problem tasks	Seminar
knows and understands the processes of: cell cycle, proliferation, differentiation, senescence, apoptosis and necrosis, and their role in the functioning of the organism:	B.W18	observation and evaluation of in class activity;; oral exam solving of multimedia-based problem tasks	Seminar
knows and understands the structure of lipids and polysaccharides and their functions in cellular and extracellular structures:	B.W11	observation and evaluation of in class activity; oral exam; solving of multimedia-based problem tasks	Seminar
knows and understands the mechanisms of communication between cells and the extracellular matrix, signal transduction pathways in the cell, and examples of disruptions in these processes leading to the development of cancer and other diseases	B.W17	observation and evaluation of in class activity; oral exam; solving of multimedia-based problem tasks	Seminar
knows and understands the issues of cancer immunology	C.W24	observation and evaluation of activity in class; oral exam; solving multimedia-based problem tasks	Seminar
knows and understands the basics of development and mechanisms of action of the immune system, including innate and acquired mechanisms of cellular and humoral immunity.	C.W21	observation and evaluation of in class activity; oral exam; solving multimedia-based problem tasks	Seminar
knows the issues of cancer immunology	C.W24	observation and evaluation of in class activity ; oral exam; solving multimedia-based problem tasks	Seminar

Assignment conditions

Verification of the established learning outcomes is carried out through a range of methods of student assessment: Points obtained for each seminar and preparation for class. During each course class, the student can obtain from 0 to 2 points, which are awarded based on: theoretical preparation for class discussion based on solving problem tasks, independent solving of engagement-promoting tasks linking selected issues of cytophysiology with known diseases observation of the student's analysis and solving of problem tasks. The score of the credit test consisting of 60 single-choice questions, for which the student can obtain 60 points. The maximum number of points that a student can obtain is 70.

Credit for the course is based on the achievement of at least 60% of the possible points from the seminars and 60% from the credit test. The final grade is calculated based on the sum of the points from the seminar and the credit test. The points obtained are converted into grades according to the following scale: 90-100% = 5.0; 83-89% = 4.5; 74-82% = 4.0; 67-73% = 3.5; 60-66% = 3.0; 0-59% = 2.0

Students with excused absences should consult with the teacher and make up for them within up to 14 days, but no later than the day of the credit test.

For each unexcused absence, 6 points are deducted from the total score, and verification of the material must be arranged with the teacher. In the case of 2 unexcused absences, the coordinator shall notify the Dean of the fact, who shall decide whether to continue to credit or withdraw the student from the compulsory classes in the course.

Regulations on credit conditions correspond to the conditions for direct credit, subject to the possibility of changes in the event of the need to switch to remote crediting in the regulatory time, before the start of the examination session.

Other conditions are specified in the Regulations of Studies at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recomending reading

Zabel M., Kawiak J. Seminaria z Cytofizjologii dla studentów medycyny, weterynarii i biologii. Edra Urban & Partner, Wroclaw 2021, Ed. 3.

Additional reading

Alberts B., Hopkin K., Johnson A.D., Morgan D., Raff M, Roberts K., Walter P.: *Podstawy biologii komórki*., PWN, Ed. III, Warsaw 2019,

Academic publications in scientific journals: Postępy Biologii Komórki, Postępy Biochemii.

Diagnostic imaging

Course name	Diagnostic imaging
Course ID	12.8-WL-LekAM-DOb
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Wojciech Wierzchołowski

The class form	**Hours per semester (full-time)**	**Form of assignment**
Clinical classes	15	Credit with grade
Seminar	30	Credit with grade
Lecture	15	Exam

Aim of the course

The aim of the education is to familiarize students with modern methods of medical imaging (classical radiography, ultrasound, computed tomography, magnetic resonance, hybrid techniques) and the clinical application of interventional radiology, familiarization and images in normal and pathological states in the individual diagnostic techniques, as well as shaping the ability to choose the optimal imaging method for clinical symptoms, with particular emphasis on the issue of exposure of patients to ionizing radiation.

Prerequisites: Detailed knowledge of normal and topographic human anatomy.

In-depth knowledge of the basics of biophysics with particular emphasis on the physics of acoustic and electromagnetic waves as well as the problems of nuclear and quantum physics.

Scope

1. Imaging techniques in radiology, part I.
2. Imaging techniques in radiology, part II
3. Basics of interpretation of the chest image
4. Imaging of lung and mediastinal diseases
5. Diseases of the heart and blood vessels
6. Basics of interpretation of the abdominal cavity images
7. Imaging of diseases of the abdominal cavity and pelvis
8. Diagnostics in chest and abdominal injuries
9. Emergency ultrasound
10. Degenerative lesion and inflammatory diseases in the skeletal system
11. Basics of recognizing traumatic lesion in the skeletal system.
12. Imaging of intracranial changes.
13. Diagnostics in the injuries of the central nervous system.
14. Analysis of clinical cases in terms of the selection of imaging methods
15. Possibilities of modern interventional radiology

Teaching methods: Classes are conducted in the form of clinical classes in groups of 5 students with participation in ultrasound examinations, as well as interventional radiology procedures. In addition, teaching radiological anatomy and presentation of cases of typical diseases in radiographic images, computed tomography (CT) and magnetic resonance (MRI) in the computer room. Seminars and lectures conducted using multimedia presentations.

Outcome description	Outcome symbols	Methods of verification	The class form
The student knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most common diseases requiring surgical intervention, taking into account the distinctiveness of childhood, including in particular: 1acute and chronic diseases of the abdominal cavity, 2) chest diseases, 3) limb and head diseases, 4) bone fractures and organ injuries;	F.W01	an examination test with score scale; an observation and evaluation of activities during the classes; an oral response	Lecture Seminar clinical classes
The student is able to assess the result of a radiological examination of the most common types of fractures, especially those of long bones;	F.U07	an examination test with score scale; an observation; and evaluation of activities during the classes; an oral response	Lecture Seminar clinical classes
The student knows and understands the issues of contemporary imaging tests, in particular: 1) radiological symptomatology of basic diseases, 2) instrumental methods and imaging techniques used to perform medical procedures, 3) indications, contraindications and preparation of the patient for specific types of imaging tests and contraindications for use contrast agents;	F.W10	an examination test with score scale; an observation and evaluation of activities during the classes; an oral response	Lecture Seminar clinical classes

Assignment conditions

During clinical classes, the students' knowledge is verified orally. Individual activity during these classes is also rewarded. It is imperative to be present on all clinical classes. Absence from one clinical class can be made up for with another group after prior agreement with the course coordinator. The knowledge acquired during the seminars is verified by a written test. The tests are single-choice and multiple-choice tests, including questions related to radiographs showing anatomy and lesions by various imaging techniques. To pass the seminar, it is necessary to obtain a limit of 60% of correct answers, which corresponds to a satisfactory grade (3.0). The test for a given seminar takes place at the beginning of the next one. The grade from the seminar is the arithmetic mean of the grades from individual tests. One unexcused absence from the seminar is allowed, without affecting the grade. Students who have passed clinical classes and seminars are admitted to the exam. The exam is in the form of a written test with single- and multiple-choice questions. The questions concern the issues discussed during clinical classes, seminars and lectures

as well as material from the textbook of basic literature. The examination questions will also refer to radiological images showing the correct anatomical structures and diseases discussed during the course. To pass the exam, it is necessary to obtain a limit of at least 60% of correct answers. A satisfactory (3.0) grade corresponds to the range of 60-67% of correct answers, satisfactory plus (3.5) 68-75%, good (4.0) 76-84%, fairly good (4.5) 85-93% and very good (5.0) 94- 100%. In the case of fractional values, the conversion is carried out according to the example: 60-60.5% corresponds to 60%, 60.51-60.99% corresponds to 61%. The final grade is the arithmetic mean of the grades obtained during exercises, seminars and an exam. The retake exam is oral and the sets of questions are drawn.

The regulations on the conditions for passing the classes are for direct meetings, any changes related to the necessity to switch to remote classes will be perform during the regulatory period, before the start of the session. Other conditions, not mentioned in this point, are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. William Herring Podręcznik radiologii wyd. Urban & Partner 2020 red. wyd. polskiego Marek Sąsiadek

Further reading

1.Bogdan Pruszyński, Andrzej Cieszanowski Radiologia - diagnostyka obrazowa, RTG, TK, USG, MR, wyd. 3 PZWL ,Warszawa 2014

2.Jane Bates (red. wydania polskiego W. Jakubowski) Ultrasonografia jamy brzusznej, wyd. 2 Urban & Partner 2012

Emergency Medicine 1

Course name	Emergency Medicine
Course ID	12.0-WL-LekAM-MR
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	3
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Szymon Michniewicz M.D. Bartosz Kudliński M.D. PhD.

The class form	**Hours per semester (full-time)**	**Form of assignment**
Clinical classes	30	Credit with grade
Seminar	5	Credit with grade
Lecture	15	Credit with grade

Aim of the course

Emergency medicine is a clinical field that deals with patients of all ages, with a wide range of symptoms that are a consequence of emergencies as well as chronic diseases. Emergency medicine activities cover the entire spectrum of physical, mental, and social problems of patients. Emergency Medicine is an interdisciplinary specialty that works closely with all clinical disciplines. The aim of the classes in emergency medicine for fourth-year students is to familiarize them with the specificity of the clinical field, which is emergency medicine.

Student who completes the course knows/is able to:

1. Review and improvement of skills in the field of basic life support in adults and children.
2. The principles of basic and advanced cardiopulmonary resuscitation in accordance with the current guidelines for adults.
3. The basic principles of dealing with a patient in shock.
4. Manage the pharmacotherapy of traumatic and non-traumatic emergencies.
5. The rules of dealing with a traumatized patient in the Hospital Emergency Department.
6. The principles of organization of task therapeutic teams operating in the hospital emergency department: trauma, resuscitation and stroke.
7. The basic principles of management and communication in therapeutic teams.
8. The environment of the Hospital Emergency Department and the principles of operating basic medical devices used by task therapeutic teams in the emergency department.
9. The principles of patient segregation in the Hospital Emergency Department.

Prerequisites: Completion of classes in the following subjects: anatomy, physiology, pathophysiology, propaedeutics of internal diseases, propaedeutics of pediatrics, propaedeutics of surgery, pharmacology.

Scope:

The range of topics covered by the lectures.

1. Basic life support for adults and children.
2. Adult advanced life support.
3. Acute and chronic respiratory failure.
4. Heart failure in the course of acute cardiac conditions.

5. Acute conditions in the course of diseases of the nervous system.
6. Pharmacology in the Hospital Emergency Department - the most commonly used drugs in cardiopulmonary resuscitation and emergencies of non-traumatic origin.
7. Shock - differential diagnosis and treatment.
8. Multi-organ trauma - patient management strategy and critical procedures in HED.
9. Craniocerebral trauma - patient management strategy and critical procedures in HED.
10. Back injury - patient management strategy and critical procedures in HED.
11. Chest trauma - patient management strategy and critical procedures in HED.
12. Abdominal trauma - patient management strategy and critical procedures in HED.
13. Injuries of the pelvis and long bones - patient management strategy and critical procedures in HED.
14. Basic principles of organization and operation of therapeutic teams.
15. Basic principles of management and communication in therapeutic teams.
16. Patient segregation in the Hospital Emergency Department - ESI and MTS systems.

The range of topics carried out as part of the exercises at the Medical Simulation Center.

1. Basic life support in adults.
2. Basic life support in children.
3. Basic and advanced protection of airway establishment.
4. Ventilation with an ambu-bag.
5. Supraglottic airway establishment and ventilation devices.
6. Electrotherapy: defibrillation, electrical cardioversion, transcutaneous stimulation.
7. Advanced resuscitation procedures in adults.
8. Communication in the therapeutic team.

The scope of topics carried out in the course of exercises in the Hospital Emergency Department.

1. Organization of the Hospital Emergency Department.
2. Operation of basic medical devices used by the resuscitation team: defibrillator, mechanical chest compressor.
3. Patient segregation in the Hospital Emergency Department - ESI and MTS systems.

Teaching methods: lecture, seminar, clinical classes in 5-person groups, medical simulation, practical classes, case study, student's own work with a textbook and digital materials.
Classes at the medical simulation center.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows the algorithm of management for each stage of accidental and traumatic hypothermia	F.W16	• a discussion • a test	Lecture Seminar Clinical classes
knows the current guidelines for cardiopulmonary resuscitation in newborns, children and adults;	F.W07	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
operates in accordance with the current algorithm of advanced life support;	F.U11	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes

knows the physical laws describing fluid flow and the factors influencing the vascular blood flow resistance	B.W05	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
holds a conversation with an adult patient, child and family using the active technique of listening and expressing empathy, as well as talking to the patient about his life situation;	D.W05	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
understands the significance of verbal and non-verbal communication in the process of communicating with patients and the idea of trust in interaction with the patient;	D.W11	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management of the most common diseases of the central nervous system in the field of: a) brain edema and its consequences, with particular emphasis on emergencies, b) other forms of intracranial tightness from their consequences, c) craniocerebral injuries, d) vascular defects of the central system nervous system, e) neoplastic tumors of the central nervous system, f) diseases of the spine and spinecord;	F.W13	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
adheres to the principles of asepsis and antisepsis;	F.U03	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
assesses the condition of the unconscious patient in accordance with the applicable international point scales	F.U21	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
knows the basic principles of pharmacotherapy;	C.W38	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
knows the main mechanisms of drug action and their age-dependent changes in the system	C.W35	• a pass - oral, descriptive, test and other • activity during the classes	Lecture Seminar

		• an ongoing monitoring during classes	Clinical classes
knows the principles of operation of the integrated system of state medical rescue;	F.W08	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
Stops and dresses external bleeding;	F.U09	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
performs emergency immobilization of the limb, chooses the type of immobilization necessary for the typical clinical situations and controls the blood supply to the limb after applying an immobilizing dressing;	F.U08	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
performs basic life support using an automated external defibrillator, other rescue activities and first aid;	F.U10	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
knows the metabolic profiles of basic organs and systems;	B.W16	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes
describes the water and electrolyte balance in biological systems;	B.W02	• a pass - oral, descriptive, test and other • activity during the classes • an ongoing monitoring during classes	Lecture Seminar Clinical classes

Assignment conditions

Completion of the course takes place after the student meets the following conditions:

1. Presence at lectures, seminars and clinical classes. Excused absence from one lecture is allowed. Pass in theoretical knowledge during practical classes: During the practical classes, the student has to take 3 tests. Obtaining a positive mark for each introductory written test in necessary for passing. A positive result of all introductory tests is a condition for admission to the final test.

2. The condition for passing the test in practical classes is obtaining a minimum of 60% positive answers from the test:

Grades: a. very good - 100.00% - 90.00% ; b. fairly good - 89.99% - 85.00% ; c. good - 84.99% - 75.00% ; d. satisfactory plus - 74.99% - 70.00% ; e. satisfactory - 69.99% - 60.00% ; f. unsatisfactory - below 60.00%

3. The condition for passing the final test is obtaining a minimum (60%) of positive answers from the test: Grades: a. very good - 100.00% - 90.00%; b. fairly good - 89.99% - 85.00% ; c. good - 84.99% - 75.00% ; d. satisfactory plus - 74.99% - 70.00% ; e. satisfactory - 69.99% - 60.00%, f. unsatisfactory - below 60.00%

In a situation where the teachers of practical classes consider the skills presented by the student / student to be insufficient, at his / her request, the Head of the Department conducts an exam before a board for the practical skills.

In the event of an excused absence from the practical classes, the student must make up for the absence within the time limit agreed with the teacher.
Other conditions, not mentioned in the Conditions of Assessment, are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Wytyczne resuscytacji 2020 Europejskiej Rady Resuscytacji;
2. Zaawansowane zabiegi resuscytacyjne i wybrane stany nagłe J. Gucwa, M.Ostrowski; Wydawnictwo Medycyna Praktyczna, Kraków 2018;

Further reading

1. ITLS 2017 (International Trauma Life Support) - Ratownictwo przedszpitalne w urazach
2. Medycyna ratunkowa NMS, Plantz Scott H., E.John Wipfler, Wrocław, 2, 2012
3. Triage. Ratunkowa segregacja medyczna. red. wyd. pol. Juliusz Jakubaszko, Wydawca: Edra Urban & Partner; 2016

Emergency Medicine 2

Course name	Emergency Medicine
Course ID	12.0-WL-LEK-Mra
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	12
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Michał Gaca, prof. UZ lek. Szymon Michniewicz dr n. med. Bartosz Kudliński

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	60	Exam

Aim of the course

Emergency medicine is a clinical field that deals with patients of all ages, with a wide range of symptoms that are a consequence of emergencies as well as chronic diseases. Emergency medicine activities cover the entire spectrum of physical, mental, and social problems of patients. Emergency Medicine is an interdisciplinary specialty that works closely with all clinical disciplines. The aim of the classes in emergency medicine for fourth-year students is to familiarize them with the specificity of the clinical field, which is emergency medicine.

Aim of the course:

1. Review and improvement of skills in the field of basic life support in adults and children.
2. Review and improvement of CPR skills at an advanced level in accordance with current adult guidelines.
3. The principles of conducting cardiopulmonary resuscitation at the advanced level in accordance with the current guidelines for children.
4. The procedures in traumatic causes of cardiac arrest: airway obstruction, tension pneumothorax, external haemorrhage,

1. Introducing the student into the rules of proceeding during cardiac arrest caused by:
- the action of toxic substances and drugs, electrolyte disturbances, hypothermia, anaphylaxis, pulmonary embolism,

1. Introducing the student into the rules of conduct in the event of cardiac arrest in a pregnant woman.
2. Introducing the student into the basic rules of procedure in the Hospital Emergency Department with a patient in shock.
3. Revising and improving the skills of proceeding in the Hospital Emergency Department, in case of cardiac arrhythmias, which threaten cardiac arrest: bradycardia, narrow QRS complex tachycardia, broad QRS complex tachycardia,

1. Introducing the student into the principles of organizing task-oriented therapeutic teams operating in the hospital emergency department:
- traumatic, resuscitation, percussion.

1. The basic principles of management and communication in therapeutic teams.
2. The basic issues of disaster medicine.

3. The basic rules of conduct of medical teams in the event of events with a large number of victims at the pre-hospital level.
4. The basic principles of organizing the work of the Hospital Emergency Department while waiting for the arrival of a large number of victims in a pre-hospital emergency.
5. Revising the basic principles of organization and operation of the patient segregation system in the Hospital Emergency Department during the routine work of the emergency department.

Prerequisites
Knowledge of anatomy, physiology, pathophysiology, pathomorphology, propaedeutics of internal diseases, pediatrics, laboratory diagnostics, pharmacology. Prior completion of the following subjects in previous semesters: anaesthesiology and intensive therapy as well as emergency medicine.

Scope
The scope of topics implemented in the form of an introduction:
1. Advanced life support in children. 2. Cardiac arrest in a trauma patient. 3. Cardiac arrest in special situations:
The scope of topics implemented in the form of an introduction:
1. Advanced life support in children.
2. Cardiac arrest in a trauma patient.
3. Cardiac arrest in special situations: pregnancy, hypothermia, electrolyte disturbances, the action of toxic substances and drugs; anaphylaxis,
1. Multiple organ trauma.
2. Fluid resuscitation.
3. Hyperbaric medicine.
4. Pre-hospital management strategy during a mass incident.
5. Patient segregation in the Hospital Emergency Department - ESI and MTS systems.
6. Basic principles of management and communication in therapeutic teams.
7. Basic principles of organization and operation of therapeutic teams.
The scope of topics carried out as part of the exercises at the Medical Simulation Center.
1. Basic life support in adults.
2. Basic life support in children.
3. Electrotherapy: defibrillation, electrical cardioversion, transcutaneous stimulation.
4. Advanced resuscitation procedures in an adult patient.
5. Advanced resuscitation procedures in a pediatric patient.
6. Rescue procedures carried out at the pre-hospital stage.
7. Communication in the therapeutic team.
The scope of topics covered during classes at the Hospital Emergency Department.
1. Hyperbaric therapy.
2. Analyzer of critical parameters and the analysis of the results of blood tests of HED patients.
3. Patient segregation in the Hospital Emergency Department - ESI and MTS systems.

Teaching methods
Clinical classes are held in groups of 5-6 people in the hospital emergency department of the University Hospital and at the Medical Simulation Center of the University of Zielona Góra, focusing on the practical learning of emergency procedures and protection of vital functions, taking into account mass losses.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
able to assess the condition of an unconscious patient in accordance with the applicable international point scales;	F.U21	Test, descriptive and practical tests, discussion	Clinical classes
can treat a simple wound, put on and change a sterile surgical dressing;	F.U04	Test, descriptive and practical tests, discussion	Clinical classes
can examine the nipples, lymph nodes, the thyroid gland and the abdominal cavity in terms of acute abdomen, and to perform a finger exam through the anus;	F.U06	Test, descriptive and practical tests, discussion	Clinical classes
knows and understands the principles of operation of the integrated system of the State Medical Rescue;	F.W08	Test, descriptive and practical tests, discussion	Clinical classes
can recognize symptoms of increasing intracranial pressure;	F.U22	Test, descriptive and practical tests, discussion	Clinical classes
knows and understands the rules of qualification for basic surgical procedures and invasive procedures diagnostic and treatment methods, rules of their implementation and the most common complications;	F.W03	Test, descriptive and practical tests, discussion	Clinical classes
knows and understands the guidelines for cardiopulmonary resuscitation in newborns, children and adults;	F.W07	Test, descriptive and practical tests, discussion	Clinical classes
can follow the rules of asepsis and antisepsis;	F.U03	Test, descriptive and practical tests, discussion	Clinical classes
is able to assess the result of a radiological examination in terms of the most common types of fractures, especially fractures of long bones;	F.U07	Test, descriptive and practical tests, discussion	Clinical classes
is able to perform temporary immobilization of the limb, select the type of immobilization necessary for use in typical clinical situations and control the correctness of the limb blood supply after applying the immobilizing dressing;	F.U08	Test, descriptive and practical tests, discussion	Clinical classes
is able to operate in accordance with the current algorithm of advanced life support;	F.U11	Test, descriptive and practical tests, discussion	Clinical classes
can treat and dress external bleeding;	F.U09	Test, descriptive and practical tests, discussion	Clinical classes
knows and understands the indications and principles of intensive therapy;	F.W06	Test, descriptive and practical tests, discussion	Clinical classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in the case of the most common diseases of the central nervous system in the field of: 1)	F.W13	Test, descriptive and practical tests, discussion	Clinical classes

brain edema and its consequences, with particular emphasis on emergencies, 2) other forms of narrowness intracranial with their consequences, 3) craniocerebral injuries, 4) vascular defects central nervous system, 5) cancerous tumors of the central nervous system, 6) diseases of the spine and spinal cord;			
can use basic surgical tools;	F.U02	Test, descriptive and practical tests, discussion	Clinical classes
can put on a peripheral puncture;	F.U05	Test, descriptive and practical tests, discussion	Clinical classes
is able to perform basic life support procedures with the use of an automatic defibrillator external and other rescue operations and provide first aid;;	F.U10	Test, descriptive and practical tests, discussion	Clinical classes
knows and understands the principles of scientific, observational and experimental research and research in vitro for the development of medicine	B.W29	Test, descriptive and practical tests, discussion	Clinical classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most common diseases requiring surgical intervention, taking into account the distinctiveness of childhood, including in particular: 1) acute and chronic diseases of the abdominal cavity, 2) chest diseases, 3) diseases limbs and head, 4) bone fractures and organ injuries;	F.W01	Test, descriptive and practical tests, discussion	Clinical classes
assesses the condition of an unconscious patient in accordance with the applicable international scales pointers;	F.U21	activity during the classes an exam - oral, descriptive, test and other an ongoing monitoring during classes	Clinical classes
is able to recognize and implement poisoning procedures	C.W44 C.W45 C.W46	activity during the classes an exam - oral, descriptive, test and other an ongoing monitoring during classes	Clinical classes
knows and understands the issues of contemporary imaging tests, in particular: 1) radiological symptomatology of basic diseases, 2) instrumental methods and imaging techniques used to perform medical procedures, 3) indications, contraindications and preparation of patients for particular types of imaging	F.W10	Test, descriptive and practical tests, discussion	Clinical classes

examinations and contraindications to the use of contrast agents;			

Assignment conditions

Completion of the course takes place after the student meets the following conditions:

1. Absence from one of the clinical classes is allowed. A justification - an appropriate document confirming an illness (sick leave) or a random accident - should be presented to the teacher within 3 working days of the event. Unexcused absences mean the inability to complete the course.

Obtaining credit in theoretical knowledge during practical classes. During the practical classes, the student has to write 3 tests in the form of a test. Passing takes place after obtaining a positive mark for each introductory written test. A positive result of all introductory test tests is a condition for admission to the final examination.

1. The condition for passing the test in practical classes is obtaining a minimum of 60% positive answers from the test:

Grades: a. very good - 100.00% - 90.00%; b. good plus - 89.99% - 85.00%; c. good - 84.99% - 75.00% d. satisfactory plus - 74.99% - 70.00%; e. satisfactory - 69.99% - 60.00%; f. unsatisfactory - below 60.00%

2. The final examination consists of theoretical and practical parts.

3a. The theoretical part of the exam is a test with 50 single-choice questions. The condition for passing the final test is obtaining a minimum (60%) positive answers:

The condition for passing the test in practical classes is obtaining a minimum of 60% positive answers from the test:

Grades: a. very good - 100.00% - 90.00%; b. good plus - 89.99% - 85.00%; c. good - 84.99% - 75.00% d. satisfactory plus - 74.99% - 70.00%; e. satisfactory - 69.99% - 60.00%; f. unsatisfactory - below 60.00%

3b. The practical part of the exam is carried out in the form of the Objective Structured Clinical Examination (Objective Structured Clinical Examination) exam.

The remaining conditions are specified in the Study Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Wytyczne resuscytacji 2020 Europejskiej Rady Resuscytacji;
2. Zaawansowane zabiegi resuscytacyjne i wybrane stany nagłe J. Gucwa, M.Ostrowski; Wydawnictwo Medycyna Praktyczna, Kraków 2018;

Further reading

1. ITLS 2017 (International Trauma Life Support) - Ratownictwo przedszpitalne w urazach
2. Medycyna ratunkowa NMS, Plantz Scott H., E.John Wipfler, Wrocław, 2, 2012
3. Triage. Ratunkowa segregacja medyczna. red. wyd. pol. Juliusz Jakubaszko, Wydawca: Edra Urban & Partner; 2016
4. Zarys medycyny hiperbarycznej; Aleksander Sieroń, Grzegorz Cieślar; Alfa Medica Press; 2020

Evidence-based Medicine

Course name	Evidence-based Medicine
Course ID	12.0-WL-LEK-MODN
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Prof. dr hab. Wojciech Błogowski

The class form	Hours per semester (full-time)	Form of assignment
Lecture	30	Credit with grade

Aim of the course

Introducing students to the issues of conducting scientific research in the field of medicine and practicing medicine based on scientific evidence - EBM (*Evidence Based Medicine*). Acquisition by students of the medical faculty of basic information on scientific research in medicine and the role of a physician in conducting it, as well as creating basic skills in the field of formulating research hypotheses, critical assessment of available scientific research and preliminary planning of the structure of scientific projects. Shaping students' skills to present the basic assumptions of original scientific research, their interpretation and critical analysis.

Prerequisites

Basic knowledge of medical ethics and clinical medicine, including elements included in preclinical education, such as clinical immunology, clinical genetics, radiology and pathomorphology.

Scope

Basic ethical and legal regulations determining the performance of the medical profession in Poland. Basic aspects of ethical research in medicine. Principles of Evidence-Based Medicine - EBM. EBM philosophy - basics of clinical decisions and formulation of clinical questions and their components (population, intervention, hard and soft endpoints, quality of life, costs of care). Characterization of sources of answers to clinical questions (international databases collecting primary and secondary studies, structural abstracts of primary and secondary studies, guidelines, textbooks, computer advisory systems and artificial intelligence in clinical decision making). Strategy for finding answers to a clinical question (based on the use of Medline and Scopus databases). Research funding and the concept and significance of conflicts of interest in medicine. Practical reading of a scientific article in the field of clinical specialization, which is within the student's individual interests.

Teaching methods

Lectures in the number of 30 hours are aimed at summarizing the detailed knowledge about conducting scientific research with an emphasis on the use of available scientific research in making clinical decisions. Stating method: informative lecture with the use of multimedia presentations, examples of problem solving.

Learning outcomes and methods of their verification

Outcome description	Outcome symbols	Methods of verification	The class form
understands the basics and rules of using databases, mainly international ones and, if necessary, can identify the necessary information using the above-mentioned databases;	B.U10	a preparation of a project activity during classes	Lecture
is able to present the necessary parts of an original research project in a basic way and / or to critically evaluate it in general	B.U13	a preparation of a project	Lecture
recognizes the basic differences between the assumptions of prospective, retrospective, randomized analyzes, case reports and experimental studies	B.U12	a preparation of a project activity during classes	Lecture
knows the process of creating a hierarchy of research values and their suitability for making clinical decisions	B.U12	a preparation of a project activity during classes	Lecture
understands the basics of the rules governing the profession of a doctor and its role in conducting scientific research	B.W29	a preparation of a project activity during classes	Lecture

Assignment conditions

Passing the lectures: To obtain a credit, the student will have to develop and describe a hypothetical original research project of a nature determined during the course or analyze an original research published in a peer-reviewed scientific journal in the field of the student's individual interests. In cases of excused absences (not exceeding 50% of all classes), the student should fill in the gaps in the time and form agreed with the teacher, in accordance with the study regulations.

Final grade: The final grade will be issued on the basis of the completed task or the performed critical analysis of the original study.

Recommended reading

1. Budziński R. (ed.) I Gdańsk Medical Debate. Evidence-based medicine. Ed. Bernardinum 2015.
2. Online Resource: PubMed Tutorial. PubMed QuickTours. US National Library of Medicine. https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.html
3. STROBE Statement (guidelines for the development of observational studies and other guidelines: CONSORT - randomized clinical trials, PRISMA - systematic reviews and meta-analyzes)
4. Kallestinova ED. How to Write Your First Research Paper. Yale J Biol Med. Sep 2011; 84 (3): 181–190. Online resources: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3178846

Further reading

1. Kulczycki E. Researcher's workshop. Blog. Internet resources: http://ekulczycki.pl/; including, among others: http://ekulczycki.pl/warsztat_badacza/jak-napisac-dobry-abstrakt/
2. About Clinical Studies. US National Institutes of Health. Online Resources: http://www.clinicaltrials.gov/ct2/about-studies/learn
3. Giving research presentations. Pfirman S. Lamont-Doherty Earth Observatory, Columbia University. Online resources: http://www.ldeo.columbia.edu/~martins/sen_sem/sci_talk/Scientific_talk.ppt

Family Medicine

Course name	Family Medicine
Course ID	12.0-WL-LEK-MROD
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2019/2020
Semester	9
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Józef Haczyński, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	30	Exam
Clinical classes	30	Credit with grade

Aim of the course:

C2. Mastering the skills of collecting and interpreting medical history in a child and an adult patient in the conditions of a family doctor's practice

C3. mastering the ability to assess the general condition, consciousness and consciousness of the child and patient with referring diagnosis of life-threatening conditions requiring immediate medical intervention under the conditions of a family doctor's practice

C4. planning the diagnostic process and interpretation of the results of laboratory tests, imaging diagnostics and ECG in the basic diseases most often encountered in the practice of a family doctor

C5 planning therapeutic management based on applicable standards of treatment and individualization of therapy in the face of ineffectiveness or contraindications to standard therapy

C5. disease and addiction prevention, health promotion with particular emphasis on the early detection of neoplastic diseases

C6 Application of ethical, social and legal determinants of practicing the medical profession and the principles of health promotion, based on scientific evidence and the philosophy of humanization of medicine

Prerequisites: Knowledge and the ability to use the knowledge gained during the current course of studies, both in the field of basic sciences and preclinical subjects, as well as clinical subjects, in the process of diagnostics and treatment.

Course scope:

1. The role of a family doctor in the health care system.
2. Diagnostic and therapeutic management in the most common diseases related to the following systems: cardiovascular, respiratory, gastrointestinal, urinary and reproductive systems, hematology, rheumatology, skin and subcutaneous tissue diseases occurring in the practice of a family doctor, taking into account the specificity of individual age groups
3. Protective vaccinations, indications, contraindications, vaccination schedule, complications, qualification for vaccinations.
4. Communication with the patient and medical consultations, specificity of the diagnostic process in the practice of a family doctor
5. Prevention and early detection of civilization diseases and neoplasms.
6. Family and environmental pathology, domestic violence.
7. Addiction diagnosis and therapy in the practice of a family doctor.

8. Care for the chronically ill. 9. Palliative medicine. 10. Keeping medical records

Education methods:
Classes conducted in groups of 5 in family doctor's offices, participation in the daily work of a doctor. Lectures in the form of multimedia presentations.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows the environmental and epidemiological conditions of the most common diseases	E.W1	descriptive test and practical tests, discussion	Lecture and exercise classes
knows the rules of nutrition for healthy and sick children, including natural feeding, preventive vaccinations and keeping a child's health balance	E.W2	descriptive test and practical tests, discussion	lecture and exercise classes
knows the issues of: abused child and sexual abuse, mental retardation, behavioral disorders: psychoses, addictions, eating disorders and excretion in children	E.W4	descriptive test and practical tests, discussion	lecture and exercise classes
knows and understands the basic principles of organizing care for an elderly person and the burden of an elderly caregiver;	E.W12	descriptive test and practical tests, discussion	lecture and exercise classes
knows and understands the concept of disability, invalidity and disability	E.W30	descriptive test and practical tests, discussion	lecture and exercise classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in the most common diseases and specific problems in the practice of a family doctor in children, adults and in the event of complications	E.W3 E.W7 E.W36	descriptive test and practical tests, discussion	lecture and exercise classes
conducts a medical interview with an adult patient	E.U1	descriptive test and practical tests, discussion	lecture and exercise classes
conducts a medical interview with the child and his family	E.U2	descriptive test and practical tests, discussion	lecture and exercise classes
conducts a full and targeted physical examination of an adult patient;	E.U3	descriptive test and practical tests, discussion	lecture and exercise classes
conducts a physical examination of a child at any age	E.U4	descriptive test and practical tests, discussion	lecture and exercise classes
carries out children balance examination	E.U11	descriptive test and practical tests, discussion	lecture and exercise classes
carries out differential diagnosis of the most common diseases of adults and children	E.U12	descriptive test and practical tests, discussion	lecture and exercise classes
plans diagnostic, therapeutic and prophylactic procedures	E.U16	descriptive test and practical tests, discussion	lecture and exercise classes

qualifies the patient for home and hospital treatment	E.U20	descriptive test and practical tests, discussion	lecture and exercise classes
qualifies the patient for vaccinations	E.U27	descriptive test and practical tests, discussion	lecture and exercise classes
performs basic medical procedures, including: body temperature measurement, heart rate measurement, non-invasive blood pressure measurement, monitoring of vital signs using a cardiomonitor, pulse oximetry, oropharyngeal tube insertion, urinary bladder catheterization in women and men, standard resting electrocardiogram with interpretation, simple test strips and blood glucose measurement	E.U29	descriptive test and practical tests, discussion	lecture and exercise classes
plans specialist consultations	E.U32	descriptive test and practical tests, discussion	lecture and exercise classes
recognizes the patient's agony and declares his death	E.U37	descriptive test and practical tests, discussion	lecture and exercise classes
keeps the patient's medical records.	E.U38	descriptive test and practical tests, discussion	lecture and exercise classes

Assessment conditions:

The student's knowledge and practical skills will be verified in the form of preliminary tests, observation of the student's work, evaluation of preparation for classes, evaluation of activity during classes, case reports, partial credits and final credit. Preparation for exercises is verified in an oral or written form. The mastery of individual batches of material is verified in the form of descriptive and / or test tests (single and multiple choice questions) after the end of a given thematic block. The condition for admission to the exam is to obtain credit for exercises and knowledge tests as well as attendance at lectures. Final credit consists of the theoretical part (test). The assessment from the practical part is the assessment from the exercises. The final grade is the grade obtained by the student from the theoretical part of the final exam.

Passing the theoretical part will be conducted in the form of a test consisting of 100 single-choice and multiple-choice questions (1 question - 1 point). The duration of the examination is 100 minutes (1 question - 1 minute). The threshold for passing the theoretical part is 65% (the minimum number of points to pass - 65). Scoring - grades: <65 - 2.0; 65-71 points - 3.0; 72-78 points - 3.5; 79-85 points - 4.0; 86-92 points - 4.5; 93-100 points - 5.0 .In the event of receiving an unsatisfactory grade, the student is entitled to correct it by the end of the academic year, within the time limit agreed with the person conducting the classes or authorized by the head of the teaching unit.

Other conditions, not mentioned in this point, are specified in the study regulations at the university of zielona góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading:

1. Rakel D, Rakel Textbook of Family Medicine Nine Edition Elsevier 2016

2. Magazines available at the University Library of the University of Zielona Góra, digital databases - medical sciences and health sciences; http://www.bu.uz.zgora.pl/

General Surgery

Course name	General Surgery
Course ID	12.0-WL-LekAM-CHO
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	6
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Dawid Murawa, prof. UZ

The class form	**Hours per semester (full-time)**	**Form of assignment**
Clinical classes	30	Credit with grade
Seminar	10	Credit with grade
Lecture	30	Credit with grade

Aim of the course

The aim of the education is to provide basic information on surgical specialties. Getting to know the examination of the surgical patient, diagnosis of surgical diseases, recognition of the symptoms of "acute abdomen", as well as recognition of congenital and acquired malformations, diagnosis of surgical infections. The student learns the algorithms of emergency procedures, including diagnostics and preparation for surgery.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pathomorphology.

Scope: Lecture:

1. History of the surgery. Legal aspects of the surgery.
2. Examination of the surgical patient.
3. Types and treatment of wounds. Wound healing. Surgical tools and materials.
4. Preparation of the patient for surgery and perioperative management.
5. Fluid and electrolyte management in surgical patients.
6. Anesthesia and analgesic treatment in surgery.
7. Hospital infections and antibiotic therapy in the surgical ward.
8. Minor surgeries, nosocomial infections.
9. Acute abdomen, peritonitis, septic shock.
10. Appendicitis.
11. Intestinal obstruction.
12. Bleeding from the gastrointestinal tract.
13. Burns and frostbites.
14. Laparoscopic surgery.
15. Basic knowledge of organ transplantation.
16. Basics of transplant surgery.
17. Organization of the operating theater. Asepsis and antisepsis.
18. Pediatric surgery and pediatric urology.
19. Oncological surgery.
20. Abdominal hernias.
21. Chest and abdominal injuries.
22. Diagnostic and interventional endoscopy in surgery.

23. Proctology.

Clinical classes:

1. Subjective and physical examination of patients, tactics and planning of treatment of surgical patients. Preparing the patient for surgery.
2. Medical documentation, patient consent to the surgical and diagnostic procedure. Injections, collecting material for laboratory tests, evaluation of laboratory and imaging tests.
3. Wound healing. Purulent infections in surgery. Asepsis: dressing room, dressings, desmurgy.
4. Basic procedures in the surgical ward. Prevention and treatment of perioperative complications. Bacterial infections. Hospital acquired infections. Diagnostic tests in surgery.
5. Operating theater: surgical washing, rules of work in the operating theater, basic surgical instruments, learning to sew, surgical sutures. Planning of surgical procedures.
6. Emergency Room - first aid in surgery, acute abdomen, burns, injuries.
7. Burns, burn scars. Shock (types and treatment). Bleeding and the use of blood substitutes in surgery. Fluid and electrolyte disturbances.
8. General, oncological and proctological surgery outpatient clinic.
9. Central Endoscopy Laboratory - endoscopy of the gastrointestinal tract.

Seminars - case reports of patients in the surgical department

Teaching methods: Clinical classes take place in the form of classes in surgical wards and surgical clinics, ad includes patient management in the emergency room. Lectures in the form of multimedia presentations. On seminars - discussion based on clinical cases.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
recognizes the patient's agony and declares his death	E.U37	a discussion a quiz activity during the classes an observation and evaluation of the student's practical skills	Clinical classes
keeps the patient's medical records	E.U38	a discussion activity during the classes an observation and evaluation of the student's practical skills	Seminar Clinical classes
recognizes the states of imminent threat to life;	E.U14	a discussion a quiz activity during the classes	Lecture Seminar Clinical classes
take material for tests used in laboratory diagnostics;	E.U28	activity during the classes an observation and evaluation of the student's practical skills	Clinical classes
conducts a medical interview with an adult patient;	E.U01	a discussion activity during the classes an observation and evaluation of the student's practical skills	Clinical classes
knows the environmental and epidemiological conditions of the most common diseases;	E.W01	a discussion a quiz	Lecture Seminar

conducts a full and targeted physical examination of an adult patient;	E.U03	a discussion activity during the classes an observation and evaluation of the student's practical skills	Clinical classes
assesses pressure ulcers and applies appropriate dressings;	E.U35	a discussion activity during the classes an observation and evaluation of the student's practical skills	Seminar Clinical classes
performs basic medical procedures and treatments;	E.U29	activity during the classes an observation and evaluation of the student's practical skills sprawdziany opisowe, dyskusja	Lecture Seminar Clinical classes
acts properly in case of injuries (puts a dressing or immobilization, and sutures the wound);	E.U36	activity during the classes an observation and evaluation of the student's practical skills	Seminar Clinical classes

Assignment conditions

Attendance at classes is a condition for obtaining credit. Two excused absences are allowed, and which the student should make up for in agreement with the teacher. Practical skills are verified on an ongoing basis during clinical classes based on the observation of the student's activity.
Preparation for clinical classes is verified in oral or written form. Final pass in the form of a test - 50 single-choice questions. Pass conditions: 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0. The test grade is the final grade In case of failure of the test, there is a possibility to correct it once. The test repetition will be made orally by the course coordinator.
The regulations on the conditions for passing the classes are for direct meetings, any changes related to the necessity to switch to remote classes will be perform during the regulatory period, before the start of the session. Other conditions, not mentioned in this point, are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Fibak J. Chirurgia. Repetytorium, Warszawa 2004, wydanie II (dodruk 2008), Wydawnictwo Lekarskie PZWL
2. Popiela T. Chirurgia dla studentów medycyny – Urban &Partner 2009
3. Schmidt J. Podstawy chirurgii ogólnej – PZWL Warszawa 2009

Further reading

Noszczyk W. Chirurgia, tom I, II – PZWL Warszawa 2005
Góral R. Zarys chirurgii dla studentów medycyny - PZWL 1994

Genetics

Course name	Genetics
Course ID	12.9-WL-LekAM-G
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	4
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Tomasz Huzarski, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Laboratory	30	Credit with grade
Lecture	30	Credit with grade

Aim of the course

The aim of the course is to understand the mechanisms of inheritance, etiology and symptomatology as well as the principles of medical procedure in hereditary diseases. The student learns the possibilities and indications for genetic counseling, cytogenetic tests, molecular tests and prenatal diagnostics, both in the case of rare genetic diseases, reproductive failures and common diseases, including cancer. The student learns the genetic denomination, the principles of creating, describing and interpreting pedigrees, describing and interpreting the results of genetic tests, learns the principles of diagnosing genetic diseases. The student learns about genetic terminology, the principles of creating, describing and interpreting genetic lineage, describing and interpreting the results of genetic tests, learning the principles of diagnosing genetic diseases. The student learns the rules of collecting a genetic interview, giving genetic counseling, and developing the result of genetic counseling The student learns about the legal foundations and ethical principles related to genetic diagnosis and counseling.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, biochemistry and molecular biology.

Scope:

1. Fundamentals of the structure, function and organization of human genetic material.
2. Fundamentals of mutagenesis, types of mutations and their impact on human disease.
3. Chromosomal aberrations and their influence on human diseases.
4. Autosomal dominant and recessive inheritance - on the example of selected diseases.
5. Sex-linked inheritance, disorders of sex determination.
6. Multifactorial inheritance, complex diseases
7. Other types of inheritance; mitochondrial, genomic imprinting, repeat expansion- on the examples of selected human diseases.
8. Genetic factors in the etiology of diseases of particular systems.
9. Genetics of neoplastic diseases - selected issues.
10. Neurogenetics - selected issues.
11. Immunogenetics - selected issues
12. Principles of collecting, securing, storing and isolating material for cytogenetic and molecular tests.

13. Diagnostic methods of classical and molecular cytogenetics.
14. Diagnostic methods in molecular genetics
15. Diagnostic methods in molecular genetics
16. NGS technology and its impact on the development of genetic diagnostics of human diseases
17. The role of genetics in the development of personalized medicine - selected issues
18. Genetic counseling in rare diseases
19. Genetic counseling in common diseases on the example of hereditary cancer syndrome.
20. Counseling and rules of prenatal genetic screening tests.
21. Principles of creating, describing and interpreting the genetic lineage
22. Principles of preparing and interpreting the results of genetic and cytogenetic tests
23. Online genetic databases and their application in clinical practice
24. Directions of development of clinical genetics; gene therapy trials, genetic vaccines, personalized medicine
25. Ethical and legal aspects of genetic research
26. Protection and processing of genetic data

Teaching methods

The lecture is conducted for the entire year. Seminars and laboratories for groups of 8-10 students include practical applications of DNA analysis and cytogenetics. Practical classes conducted at the genetic clinic during patient admissions, and the possibility of presenting clinical cases. Individual work of the student with the teacher during the preparation of a presentation presenting a selected problem in the field of clinical genetics

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows and understands the basic concepts of genetics	C.W01	test oral answer, colloquium	Lecture Laboratory
is able to make decisions about the need for cytogenetic and molecular tests	C.U03	test oral answer, colloquium	Lecture Laboratory
knows and understands the factors affecting the primary and secondary genetic balance of the population	C.W08	test oral answer, colloquium	Lecture Laboratory
knows and understands the basics of diagnostics of gene and chromosomal mutations responsible for hereditary and acquired diseases, including cancer	C.W09	test oral answer, colloquium	Lecture Laboratory
knows and understands the correct human karyotype and various types of sex determination	C.W03	test oral answer, colloquium	Lecture Laboratory
knows and understands the structure of chromosomes and the molecular basis of mutagenesis	C.W04	test oral answer, colloquium	Lecture Laboratory
knows and understands the principles of inheriting a different number of traits, inheriting quantitative traits, independent inheritance of traits and inheriting non-nuclear genetic information	C.W05	test oral answer, colloquium	Lecture Laboratory

is able to identify indications for prenatal testing	C.U02	test oral answer, colloquium	Lecture Laboratory
knows and understands the benefits and risks of the presence of genetically modified organisms (GMOs) in the ecosystem	C.W10	a test oral answer, colloquium	Lecture Laboratory
is able to perform morphometric measurements, analyze the morphogram and record the karyotypes of diseases	C.U04	test oral answer colloquium	Lecture Laboratory
knows and understands autosomes and heterosomes aberrations causing diseases, including cancer and oncogenesis	C.W07	test oral answer colloquium	Lecture Laboratory
is able to estimate the risk of a given disease in the offspring based on family predispositions and the influence of environmental factors	C.U05	test oral answer colloquium	Lecture Laboratory
knows and understands the genetic mechanisms of acquiring drug resistance by microorganisms and neoplastic cells	C.W11	test oral answer colloquium	Lecture Laboratory
knows and understands the principles of scientific research, observational and experimental research as well as in vitro research for the development of medicine	B.W29	test oral answer colloquium	Lecture Laboratory
knows and understands the phenomena of genetic linkage and gene interaction	C.W02	test oral answer colloquium	Lecture Laboratory
is able analyze genetic crosses and lineage of human traits and diseases, as well as assess the risk of having a child with chromosomal abnormalities	C.U01	test oral answer colloquium	Lecture Laboratory
knows and understands indications for genetic tests carried out in order to individualize pharmacotherapy	C.W41	test oral answer colloquium	Lecture Laboratory

Assignment conditions

Lecture - credit in the form of a multiple-choice test (after semester IV), written test. The test consists of 60 questions, to pass a minimum of 60% correct answers is required. For each fully correct answer (all correct answers marked and no incorrect answer marked) the student receives 1 point. There is no point or part of it for selecting only some of the correct answers in a given question or for selecting a correct and incorrect answer at the same time. Test grading scale: 60-67% satisfactory (3); 68-76% satisfactory plus (3+); 77-85% good (4); 86-94% good plus (4+), 95-100% very good (5).

If the student does not obtain the required minimum 60%, the improvement is made orally - 5 open questions.

The student is allowed to take the test on when pass the laboratory. Laboratory – to get credit, the following conditions are required:

- active presence at all laboratory classes, obtaining positive grades from tasks in the laboratory program.
- preparation and delivery of a 15-minute presentation on clinical genetics. The presentation must be previously approved in terms of content by the educator.

The assessment covers: verification of knowledge in the field of preparation for the laboratory and after completed thematic blocks. Possible forms of checking knowledge: oral, written - colloquium, case study, report, presentation.
Rules for grading laboratory classes: part 1: arithmetic mean of grades for individual tasks during laboratories, it is required to pass all tasks with a minimum grade of satisfactory - arithmetic mean of grades for tasks in part 1 is 50% of the final laboratory grade. Part 2 - evaluation for a 15-minute presentation on clinical genetics. When assessing the presentation, the following elements are taken into account: selection and definition of a clinical problem, selection of source literature, selection of issues to be discussed, form of presentation, use of time for the presentation, the ability to define final conclusions. The mark for the presentation is 50% of the final laboratory mark.
Class attendance: attendance at all classes is compulsory. Any possible absence must be excused. In the case of 1-2 excused absences, specific activities should be done with another group after prior arrangement with the teacher. If it is not possible to make up for specific classes with another group, it is necessary to pass an individual credit for a given scope of material during an individual consultation agreed with the tutor. Over two absences, it is required to repeat the entire thematic block. Due to the form of the classes, it is not possible to change laboratory groups independently without the consent of the teacher. The final grade for the subject is the arithmetic mean of all forms provided for the completion of the subject. The results of the arithmetic mean are determined in accordance with the principle: mean 3.25 is the final grade of 3.5; mean 3.75 is the final score of 4.0; mean of 4.25 is the final score of 4.5; mean 4.75 is the final score of 5.0. Disputes not included in the description are subject to resolution by the course coordinator.

Recommended reading

1. Jode, Carey, Bamshad (red, pol. wyd. Kałużewski B) Genetyka Medyczna. Elsevier Urban&Partner Wrocław 2014.
2. Jerzy Bal, Genetyka medyczna i molekularna. PWN 2017
3. Monografia pod redakcją Jana Lubińskiego. Genetyka kliniczna nowotworów 2018 http://www.genetyka.com/wp-content/uploads/2019/02/Genetyka-Kliniczna-Nowotworów-2018.pdf

Further reading

1. Tobias E, Connor M, Ferguson-Smith M. (red. pol. wyd. Latos – Bieleńska A) Genetyka medyczna. Wyd. Lekarskie PZWL Warszawa 2011.
2. Passarge E. Genetyka; Ilustrowany przewodnik. Wyd. Lekarskie PZWL Warszawa 2004.
3. Dziecko z zespołem wad wrodzonych. Diagnostyka dysmorfologiczna. L. Korniszewski. PZWL 2005.

Gynaecology and Obstetrics 1

Course name	Gynaecology and obstetrics
Course ID	12.0-WL-LEK-Gpoł
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	10
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	MD, PhD. Rafał Rzepka Associate Professor

The class form	**Hours per semester (full-time)**	**Form of assignment**
Lecture	30	Exam
Seminar	15	Credit with grade
Clinical classes	45	Credit with grade

Aim of the course

1. Mastering theoretical knowledge in the field of pregnancy, childbirth, puerperium and lactation pathology.
2. Mastering theoretical knowledge in the field of selected gynecological and obstetric diseases
3. Mastering practical skills in the field of external obstetric examination, obstetrics and gynecological medical examination, assessment of the advancement of delivery

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pharmacology, surgery propaedeutics, pediatrics and internal medicine propaedeutics, pathomorphology, radiology. Knowledge of the obstetrics ang gynecology gained during 7th semester.

Scope:

Seminars:

1. Pathology of pregnancy part 1. Pathological delivery. Bleeding in the second half of pregnancy
2. Pathology of pregnancy, part 2. Diseases of the heart and large vessels in pregnancy. Preeclampsia and hypertension in pregnancy. Diseases of the urinary system and liver in pregnancy.
3. Pathology of pregnancy part 3. The fetus as a patient. Prenatal diagnosis. Fetal diagnosis and therapy.
4. Pathology of pregnancy part 4. Diabetes in pregnancy. Thyroid diseases in pregnancy.
5. Gynecological endocrinology. Menstrual disorders. PCOS. Sterility.
6. Benign and malignant neoplasms of the ovary. Epithelial, gonadal and germ cell tumors of the ovary.
7. Urogynecology. POP. Stress urinary incontinence.

Lectures:

1. Disorders of statics of female genital organs. Urogynecology
2. Diabetes in pregnancy
3. Childbirth hemorrhages
4. Infertility and techniques of assisted reproduction
5. Cancer of the cervix, vulva and vagina
6. Endometrial cancer
7. Ovarian cancer
8. Ovarian tumors in young women

9. Children's and girls' gynecology
10. Surgical gynecology
11. Sentinel lymph node in oncological gynecology
12. Haemostasis and thrombosis
13. Antiphospolipid syndrome
14. Oncological prophylaxis in gynecology
15. Cancer in pregnancy

Teaching methods

Lectures will be conducted in the form of multimedia presentations. Seminars and clinical classes in groups of 10-12 people will be held in gynaecology and obstetrics departments and in the gynaecological clinic - Clinical Department of Gynaecological Endoscopy and Obstetrics SPZOZ (Independent Public Health Care) in Sulechów, Clinical Department of Obstetrics and Gynaecology, Karol Marcinkowski University Hospital in Zielona Góra. Clinical classes will be active, live participation in the work at the department/outpatient clinic.

A single justified absence from the seminar / clinical classes (sick leave, confirmed random event) may be made up for with another group or, in exceptional cases, credited on the basis of the assistant's oral answer. A larger number of absences requires the completion of the entire exercise block.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Interprets the duration of pregnancy and characterizes the correct duration of pregnancy. Can recognize the commencing labor and the first stage of labor. Characterizes the periods of labor, the mechanism of delivery and the procedures used during it.	F.U16	activity during classes; discussion credit - oral, descriptive, test and other activity during the classes	Seminar Clinical classes
Analyzes vital signs and the results of physical examination of a pregnant woman, associates the results of laboratory tests with symptoms suggesting a pathological course of pregnancy	F.U14	a discussion; a pass - oral, descriptive, test and other activity during the classes	Seminar Clinical classes
Analyzes and interprets the cardiotocographic record. Lists other methods of fetal monitoring.	F.U15	a discussion; a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes
Analyzes the principles of qualification and performance of basic surgical procedures and invasive diagnostic and therapeutic procedures in gynecology	F.W03	a discussion; a pass - oral, descriptive, test and other activity during the classes	Seminar Clinical classes
Analyzes the patient's condition and functions in the postoperative period, lists the principles of treatment	F.W05 F.U12	a discussion; a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes

Lists the basic components of medical documentation and knows the method of conducting medical records	E.U38	a discussion activity during the classes	Clinical classes
Can describe the principles of perioperative safety, preparation of the patient for surgery, general and local anesthesia and controlled sedation.	F.W04	a discussion a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes
Analyzes the symptoms and signs of the puerperium, interprets the course of the puerperium as physiological or pathological	F.U17	a discussion a pass - oral, descriptive, test and other activity during the classes	Seminar Clinical classes
Knows and understands the causes, symptoms, principles of diagnosis and therapeutic management regarding the most common diseases requiring surgical intervention: a) benign and malignant gynecological diseases, b) acute and chronic obstetric conditions c) diseases occurring during pregnancy	F.W01 F.W03	a discussion a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes
Lists the methods of imaging diagnostics in gynecology. Analyzes indications for individual imaging methods, interprets physiological ultrasound images of the female reproductive organs	F.W10	a discussion a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes
Lists the patient's rights. Understands the cultural conditions influencing the behavior in during the stay in the obstetrics and gynecology ward	D.W17 D.W19	a discussion, activity during the classes, an observation and evaluation of the student's practical skills	Lecture Clinical classes
Has knowledge of the anatomy of the female reproductive system, is able to relate changes occurring in the genital organs with hormonal changes related to the physiological menstrual cycle	A.W01	activity during classes; discussion; credit – oral, descriptive, test and other	Seminar Clinical classes
Maintains respect during the conversation with the patient and during the obstetric / gynecological examination as well as during physiological delivery.	D.W05 D.W06 D.W17	a discussion, activity during the classes, an observation and evaluation of the student's practical skills	Lecture Clinical classes
Lists possible methods of fetal imaging diagnostics with an emphasis on ultrasound methods. He knows the safety rules used in imaging examinations, lists contraindications to individual examinations and the possible use of contrast agents. Analyzes indications	E.W05 F.W10	a discussion, a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes

for invasive diagnostics of the fetus. Lists possible methods of fetal therapy.			
Lists and applies in practice the principles of proper cytological smear collection from the vaginal part of the cervix, applies the principles of proper securing of the collected material	E.U28	a discussion, a pass - oral, descriptive, test and other activity during the classes; an observation and evaluation of the student's practical skills an ongoing monitoring during classes	Clinical classes
Lists factors influencing the epidemiology of pathology in the field of the sexual organ. Analyzes the potential risk of teratogenic effects of environmental factors and drugs on fetus.	E.W01	a discussion; a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes
Interprets the symptoms of the most common sexually transmitted diseases. Lists possible diagnostic and therapeutic methods.	E.W36	a discussion a pass - oral, descriptive, test and other activity during the classes	Lecture Clinical classes
Lists the epidemiological factors of higher risk of developing gynecological neoplasms. Lists screening methods and early diagnosis of tumors of the genital organ.	E.W23 E.W24	a discussion, a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes
Analyzes the indications and contraindications to the use of contraception, lists the groups of contraceptive drugs. Characterizes the principles of working mechanisms of individual groups of contraceptive drugs.	F.U18	a discussion, activity during the classes	Lecture Seminar Clinical classes
Lists the causes of bleeding in the first, second and third trimesters of pregnancy. Interprets symptoms and signs of: 1) imminent miscarriage; 2) isthmus-cervical insufficiency; 3) pre-term labor threatening; 4) premature separation of the placenta	F.U13	a discussion, a pass - oral, descriptive, test and other activity during the classes	Lecture Seminar Clinical classes
Actively participates in surgical procedures, applies the principles of asepsis and antisepsis in preparation of the operating field. Practically uses hygienic and surgical hand washing.	F.U01 F.U02 F.U03	a discussion, activity during the classes; an observation and evaluation of the student's practical skills	Clinical classes
Characterizes the phases of a woman's sexual cycle and links them to hormonal changes occurring during the cycle.	F.W09	a discussion, a pass - oral, descriptive, test and other activity during the classes	Seminar Clinical classes

Characterizes the principles of operation of the Medical Rescue System in Poland. Understands principles of functioning of the reference degree system in perinatal care.	F.W08	a discussion, a pass - oral, descriptive, test and other activity during the classes	Lecture Clinical classes
Conducts a subjective and physical examination of the patient. Can conduct obstetrics and gynecologal research while maintaining deep respect and empathy.	E.U01 E.U03 E.U10	a discussion, activity during the classes, an observation and evaluation of activities during the classes an observation and evaluation of the student's practical skills	Lecture Seminar Clinical classes
Analyzes the validity of referring to the knowledge of specialists in a different field of medicine. Can indicate the field of medicine of which the consultation should be planned.	E.U32	a discussion, activity during the classes	Clinical classes

Assignment conditions

The condition for passing the course is attendance at all clinical classes and seminars. A single excused absence can be made up for with another group. More than one absence requires the entire block to be repeated. A justification - an appropriate document confirming an illness (sick leave) or a random accident - should be presented to the teacher within 3 working days of the event. Unexcused absences mean the inability to complete the course. The student is obliged to be systematically prepared for clinical classes in accordance with the schedule of seminars. Preparation for clinical classes in accordance with the schedule of seminars can be verified in an oral or written form. Unpreparedness of the student for clinical classes may result in failure to complete the day of clinical classes. Completion of a block of clinical classes and seminars takes the form of a single-choice test of 50 questions. The exam takes the form of a single-choice test - 100 questions. Admission to the final examination is covered by passing the exercise block.

Grading scale: very good> 90% ; fairly good 80-90%; good 70-80%; satisfactory plus 65-70%, satisfactory 60-65%, The final grade is the arithmetic mean of both tests. FINAL EVALUATION results are determined in accordance with the principle: mean 3.25 is the final grade of 3.5; mean 3.75 is the final score of 4.0; mean of 4.25 is the final score of 4.5; mean 4.75 is the final score of 5.0.

If the student fails the course in the first term, an oral retake examination is required.

The remaining conditions are specified in the Study Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow. In matters not covered by the regulations, the subject coordinator decides.

Basic literature:

„Położnictwo i ginekologia Tom 1-2" (Obstetrics and gynaecology Tome 1-2)edited by G. Bręborowicz. PZWL Warszawa, 2020

Supplementary literature:

"Diagnostyka prenatalna w praktyce" (Prenatal diagnosis in practice),Dariusz Borowski, Piotr Węgrzyn, Mirosław Wielgoś. PZWL, Warszawa, 2015

"Położnictwo ćwiczenia. Podręcznik dla studentów medycyny." (Obstetrics exercises. Course book for medical students.),Michał Troszyński. PZWL, Warszawa, 2016

Gynaecology and Obstetrics 2

Course name	Gynaecology and obstetrics
Course ID	12.0-WL-LEK-Gpoł
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	12
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	MD, PhD. Rafał Rzepka Associate Professor

Form of classes

Form of classes	Number of hours per semester (full-time)	Assessment method
Practical (clinical)	60	Exam

Aim of the course

The goal of education is to acquire the ability to perform gynaecological and obstetric interview, perform a gynaecological examination and use modern diagnostics with the current guidelines used in reproductive organ diseases. Learning the principles of physiological pregnancy, pregnancy pathology and emergency procedures in gynaecology and obstetrics. Introducing students to the latest scientific achievements in gynaecology and obstetrics. Acquiring by the student the basic skills necessary in conducting clinical trials, integrating clinical knowledge and skills with scientific evidence.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pharmacology, surgery propaedeutics, pediatrics and internal medicine propaedeutics, pathomorphology, radiology. Theoretical and practical knowledge is required, gained during classes in obstetrics and gynaecology in the 4th and 5th years of studies.

Scope:

1. Interview and gynaecological and obstetric examination.
2. Physiology and hormonal disorders.
3. Obstetric anatomy.
4. Urinary incontinence.
5. Disorders of the menstrual cycle and reproductive function.
6. Physiology and diseases in pregnancy. Tumours of the corpus uterus, vagina and vulva.
7. Gynaecological diseases of adolescence.
8. Diseases of the mammary gland.
9. Laboratory and endoscopic diagnostics.
10. Disorders of the statics of the genital organs.
11. Male and female infertility.
12. Ovarian tumours.
13. Oncological gynaecology.
14. Colposcopy and cytology.
15. Diseases of the uterus, vagina and vulva.
16. Infections in gynaecology and obstetrics.
17. Bleeding during pregnancy.

18. Sexual life and family planning.
19. Gestational diabetes.
20. Preeclampsia (EPH)
21. Physiology and diseases of childbirth and puerperium. Feeding of the baby.
22. Caesarean section.
23. Multiple pregnancy.
24. Ectopic pregnancy.
25. Fetal evaluation, prenatal diagnosis.
26. Emergency situations in gynaecology and obstetrics.
27. Surgery.
28. Serological conflict.
29. Premature delivery.
30. Basics of cardiotocography.
31. Puberty.
32. Menopause.

Teaching methods

Clinical classes in groups of 5-6 people in gynaecology and obstetrics departments and in the gynaecological clinic - Clinical Department of Gynaecological Endoscopy and Obstetrics SPZOZ (Independent Public Health Care) in Sulechów, Clinical Department of Obstetrics and Gynaecology, Karol Marcinkowski University Hospital in Zielona Góra. Clinical classes will be with active, live participation. They could be also remote sessions, depending on the epidemiological situation.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows and understands the rules of scientific, observational and experimental research as well as in vitro research for the development of medicine	B.W29	Written test, oral examination, practical test, discussion.	Practical (clinical)
is able to interpret the results of the physical examination of the pregnant woman (blood pressure, fetal heart rate) and the results of laboratory tests showing pregnancy pathologies	F.U14	Written test, oral examination, practical test, discussion.	Practical (clinical)
can interpret signs and symptoms during the puerperium	F.U17	Written test, oral examination, practical test, discussion.	Practical (clinical)
is able to recognize the beginning of childbirth and its incorrect duration	F.U16	Written test, oral examination, practical test, discussion.	Practical (clinical)
is able to carry out a physical examination of the patient	E.U03	Activity and ongoing observation during classes	Practical (clinical)
is able to assign recommendations, indications and contraindications regarding the use of contraceptive methods	F.U18	Activity and ongoing observation during classes, discussion, oral answers	Practical (clinical)
is able to interpret the record of cardiotocography (KTG)	F.U15	Activity and ongoing observation during classes	Practical (clinical)

is able to perform a medical interview with the patient or his family	E.U01	Activity and ongoing observation during classes	Practical (clinical)
recognizes the signs and symptoms of an abnormal pregnancy (abnormal bleeding, uterine contractions)	F.U13	Activity and ongoing observation during classes, discussion, oral answers	Practical (clinical)
is able to collect and secure material for research used in laboratory diagnostics	E.U28	Activity and ongoing observation during classes	Practical (clinical)
knows and understands the reproductive functions of a woman, related disorders as well as diagnostic and therapeutic procedures concerning in particular: the menstrual cycle and its disorders, pregnancy, physiological and pathological delivery, puerperium, inflammations and tumours within the genital organs, birth regulation, menopause, basic methods of diagnostics and gynaecological procedures. Expanding knowledge and practical skills of diagnostics, as well as subjective and objective obstetric and gynaecological examinations.	F.W09	Written test, oral examination, practical test, discussion.	Practical (clinical)
is able to monitor the postoperative period based on basic vital signs	F.U12	Activity and ongoing observation during classes, discussion, oral answers	Practical (clinical)

Assignment conditions

Preparation for classes verified in oral or written form by the teacher. Practical learning outcomes are checked through the student's observation and ongoing control during classes.

The condition for passing the course is attendance at all clinical classes. A single excused absence can be repeated with another group. More than one absence requires the entire block to be repeated.

After completing the clinical classes, an oral final exam in obstetrics and gynaecology will be conducted, covering the knowledge obtained during the 4th, 5th and 6th year of studies. Confirmation in the Practice Journal (practical clinical learning) of the knowledge and skills of practical implementation of the required procedures, in the field of gynaecology and obstetrics is a condition for taking the exam. The exam will be live. It could be also remote form depending on the epidemiological situation.

Recommended reading

„Położnictwo i ginekologia Tom 1-2" (Obstetrics and gynaecology Tome 1-2) edited by G. Bręborowicz. PZWL Warszawa, 2020

Supplementary literature:

"Diagnostyka prenatalna w praktyce" (Prenatal diagnosis in practice), Dariusz Borowski, Piotr Węgrzyn, Mirosław Wielgoś. PZWL, Warszawa, 2015

"Położnictwo ćwiczenia. Podręcznik dla studentów medycyny." (Obstetrics exercises. Course book for medical students.), Michał Troszyński. PZWL, Warszawa, 2016

"Ginekologia onkologiczna" (Oncological gynecology), Łukasz Wicherek, Zbigniew Kojs, Grzegorz Bręborowicz. PZWL, 2016

Humanization of Medicine

Course name	Humanization medicine
Course ID	12.0-WL-LekAM-HMe
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	• Agnieszka Szczepek, M.Sc., Ph.D. • prof. dr hab. Zbigniew Izdebski • Dr. Joanna Dec-Pietrowska

Course form	Number of hours per semester (full-time)	Form of credit
Seminar	15	Passing on evaluation
Lecture	15	Passing on evaluation

Aim of the course:
During this course, we will be exploring the idea of humanizing medicine, a holistic approach to treatment, and the need to create systemic solutions within the whole environment of a sick person. We will discuss the specifics of the physician-patient-medical team relationship and acquire information related to the communication process in medical practice. Presented will be the concept of communication as an essential tool in the physician's work, fundamental at all stages of the treatment process (from the diagnosis to the effective therapy).

Prerequisites: none

Thematic scope:
Lectures:
1. Humanization and dehumanization of medicine - return to the essence of medicine. Polish and World Academy of Medicine Albert Schweizer - their role in the humanization of medicine.
2. The influence of entities involved in the care system (doctors, paramedics, nurses, physiotherapists, psychologists) on the quality of the doctor-patient relationship. Possible conflicts in the social structures of the hospital team and their impact on the patient.
4. Providing professional medical information to the patient.
5. Relaying bad and bad news and dealing with dying and seriously ill patients and their relatives.
6. Professional support for victims of domestic violence.
7. The role of prejudices, gender stereotypes, and cultural backgrounds that play a role in the health worker-patient relationship.
8. Collecting medical history with psychosocial emphasis
Classes:
1. Definition and models of communication. The scheme, levels, and elements of the communication process.
2. Principles and course of the communication process. Communication techniques.
3. Effective and active listening. Assertiveness in the communication process.
4. Establishing contact and building a partner relationship with the patient. Narrative medicine
5. Communication barriers and blockades.
6. "Difficult patient" and "difficult physician" in communication.

7. Practical exercises
8. Analysis of the health care system in Poland in the context of solutions favoring dehumanization attitudes.

Teaching methods: Lectures and seminars with the use of multimedia; problem-solving approach.

Learning outcomes and methods verifying achievement of learning outcomes

Description effect	Symbols effects	Methods verification	Form of classes
The student knows and understands the functioning of the entities of the health care system and the social role of a doctor;	D.W08	Assessment of active participation and involvement in discussion; Written essay, Test	Lecture Seminar
The student knows and understands the principles of motivating the patient to pro-health behavior and informing about unfavorable prognosis;	D.W15	Assessment of active participation and involvement in discussion, Written essay, Test	Lecture Seminar
The student knows and understands the rules and methods of communication with the patient and his family, which are used to build an empathic, trust-based relationship;	D.W05	Assessment of active participation and involvement in discussion Written essay, Test	Lecture Seminar
The student knows and understands social attitudes towards the importance of health, illness, disability, and old age, social consequences of illness and disability, and socio-cultural barriers, and knows the current concept of health-related quality of life;	D.W04	Assessment of active participation and involvement in discussion Written essay, Test	Lecture Seminar
The student is able to take into account the subjective needs and expectations of the patient resulting from socio-cultural conditions in the process of therapeutic treatment;	D.U01	Assessment of active participation and involvement in discussion, Written essay, Test	Lecture Seminar
The student can conduct a conversation with an adult patient, child, and family using the technique of active listening and expressing empathy, as well as talk to the patient about his life situation;	D.U05	Assessment of active participation and involvement in discussion, Written essay, Test	Lecture Seminar
The student can provide the patient and his family with information about unfavorable prognoses;	D.U08	Assessment of active participation and involvement in discussion, Written essay, Test	Lecture Seminar
The student knows and understands the social dimension of health and disease, the impact of the social environment (family, social networks) and social inequalities on health, socio-cultural differences on health,	D.W01	Assessment of active participation and involvement in discussion, Written essay	Lecture Seminar

as well as the role of social stress in health and self-destructive behaviors;		Test	
The student can communicate with colleagues, providing feedback and support;	D.U12	Assessment of active participation and involvement in discussion Written essay, Test	Lecture Seminar
The student can inform the patient about the purpose, course, and possible risk of the proposed diagnostic or therapeutic measures and obtain his / her informed consent to undertake these activities;	D.U06	Assessment of active participation and involvement in discussion; Written essay, Test	Lecture Seminar
The student knows and understands the importance of verbal and non-verbal communication and the concept of trust in interaction with the patient;	D.W06	Assessment of active participation and involvement in discussion, Written essay, Test	Lecture Seminar
The student can involve the patient in the therapeutic process;	D.U07	Assessment of active participation and involvement in discussion; Written essay; Test	Lecture Seminar
The student can create a trustful atmosphere during the entire diagnostic and treatment process;	D.U04	Assessment of active participation and involvement in discussion; Written essay; Test	Lecture Seminar

Assignment conditions

Passing evaluation with a minimum of 60%. In case of absences, the student should fill in the gaps within the time limit agreed with the teacher. Percentages referring to the grades: 94-100% = 5.0 85-93% = 4.5 76-84% = 4.0 68-75% = 3.5 60-67% = 3.0 0-59 % = 2.0. One absence from the lectures and seminars is allowed. Additional regulations can be found in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading:

1. Imieliński K. (ed .), *Humanistic Aspects of Medicine,* Warsaw 1997
2. Nowina-Konopka M., Feleszko W., Małecki Ł., *Medical communication for students and doctors* Krakow 2018
3. Suchorzewka J., Olejniczak M. (eds .), *Humanization of medicine,* Krakow 2011
4. Silverman J., Kurz S., Draper J. , Communication *skills with patients* , Kraków 2018
5. Maciąg A. Interpersonal communication and the quality of health services. The essence of the doctor-patient relationship in medicine. Studies and Materials. Faculty of Management.

Additional reading:

1. Boissy A. Windover AK, Bokar D, Karafa M, Neuendorf K, Frankel RM, Merlino J Rothberg MB Communication Skills Training for Physicians Improves Patient Satisfaction. J Gen Intern Med. 2016 Jul; 31 (7): 755-61
2. Hashim MJ. Patient-Centered Communication: Basic Skills. Am Fam Physician. 2017, 95: 29-34.
3. Łuków P., Morality of medicine. *On the Art of Good Life and the Art of Treatment,* Warsaw 2012
4. Mateusz K. Potoniec , Hubert Syzdek : "Narrative medicine. Theory and practice". Practical Medicine 2020.

Hygiene and Epidemiology

Course name	Hygiene and Epidemiology
Course ID	12.0-WL-LekAM-FzEFK
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	6
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Professor Jerzy T. Marcinkowski MD, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade
Laboratory	20	Credit with grade

Aim of the course

1. Understanding the factors determining health and the importance of pathogens (physical, chemical and biological) in the environment.
Understanding the possibilities of measuring occupational hazards as well as methods of protection against them (technical and medical prophylaxis). Knowledge of a healthy lifestyle (including work and study).
3. Getting to know the principles of prophylaxis and prophylactic health care in different periods of life, as well as the essence of health promotion. The importance of health promotion and disease prevention in the medical and environmental aspect.
4. Epidemiology of infectious and civilization diseases - World and Poland.
5. Demographic indicators and their importance in medicine and prevention.
6. Nutritional rules, nutritional deficiencies, the importance of diet for health.

Prerequisites: Basic knowledge on anatomy, physiology and pathophysiology.

Scope:

1. Introduction to hygiene (WHO definition of health, interdisciplinary nature of hygiene as a scientific discipline in the field of medical science). Health promotion. Mental hygiene.
2. Determinants of health condition. Health problems of the population.
3. Food and nutrition hygiene.
4. Pathogenic importance of physical, chemical and biological factors in the environment.
5. Health disorders related to the quality of the environment and socio-economic factors.
6. Environmental determinants of health.
7. Hygiene of the human environment (the concept of ecology, elements of the natural environment).
8. Basics of occupational hygiene. Hygienic and sanitary problems in health care institutions. Ergonomics.
9. Health hazards at workplaces - occupational risk.
10. Hygiene of health care facilities (doctor's offices, treatment rooms, operating rooms). Occupational diseases.
11. Work environment - harmful factors.
12. Common environmental hazards in the workplace - types of hazards (biological hazards, chemical hazards, physical hazards, ergonomic hazards: key symptoms and dangers).
13. Demographic phenomena and medical demography. Health measures.

14. Medicine of different periods of life.
15. The structure and tasks of the sanitary and epidemiological station.
16. Basic types of epidemiological phenomena and methods of their study.
17. Overview of the most common types of epidemiological studies, their advantages and disa advantages.
18. Evidence-based medicine.
19. Epidemiology of non-communicable and communicable diseases - epidemics, epidemic process, investigation and epidemiological surveillance.
20. Food poisoning.
21. Cancer epidemiology.

Teaching methods: Lectures in the form of multimedia presentations. Laboratory classes – problem and case based learning, clinical cases – discussion, student's active participation.

LEARNING OUTCOMES AND METHODS OF THEIRS VERIFICATION

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows the impact of abiotic and biotic (viruses, bacteria) environmental factors on the human body and the human population and the ways of their penetration into the human body; describes the consequences of exposure of the human body to various chemical and biological factors and the principles of prevention;	C.W14	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student lists external and internal pathogens, modifiable and non-modifiable;	C.W32	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student knows the current state of knowledge about the social dimension of health and disease, the impact of the social environment (family, social networks) and social inequalities on health, as well as socio-cultural differences and the role of social stress in health and self-destructive behaviours;	D.W1	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student knows the environmental and epidemiological conditions of the most common diseases;	E.W1	Activity during classes, discussion	Labs and lectures
Student knows the environmental and epidemiological conditions of the most common human cancers;	E.W23	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student knows the methods of assessing the health of an individual and population;	G.W1	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student knows the methods of identifying and examining risk factors, advantages and disadvantages of various types of epidemiological studies as well as measures proving the presence of a cause-and-effect relationship;	G.W2	Activity during classes, discussion, evaluation test, exam	Labs and lectures

Student knows the epidemiology of infectious and chronic diseases, how to prevent their occurrence at different stages of the natural history of the disease and the role of epidemiological surveillance;	G.W3	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student knows the principles of health promotion, its tasks and main directions of action, with particular emphasis on the knowledge of the role of the elements of a healthy lifestyle;	G.W5	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student interprets the measures of the incidence of diseases and disabilities, assesses the epidemiological situation of diseases common in the country;	G.W13	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student adheres to the rules of working with biological and infectious material, knows hospital and workplace hygiene, complies with the rules of material collection with the principles of hygiene and knowledge of hospital waste disposal, prevents contamination of samples;	G.W19	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student assesses environmental threats and uses basic methods to detect the presence of harmful factors (biological and chemical) in the biosphere;	C.U6	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student notices signs of anti-health and self-destructive behaviour and responds to them appropriately;	D.U2	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student provides advice on compliance with therapeutic recommendations and a healthy lifestyle;	D.U8	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student plans diagnostic, therapeutic and prophylactic procedures;	E.U16	Activity during classes, evaluation test, exam	Labs and lectures
Student describes the demographic structure of the population and on this basis assesses the health problems of the population;	G.U1	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student collects information on the presence of risk factors for infectious and chronic diseases and plans preventive measures at various levels of prevention;	G.U2	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student tries to avoid making a medical error in his own actions;	G.U6	Activity during classes, discussion, evaluation test, exam	Labs and lectures
Student knows the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine;	B.W34	Activity during classes, discussion, evaluation test, exam	Labs and lectures

Assignment conditions

Preparation for classes verified in oral or written form. Regular class attendance is a student obligation. Two excused absences are allowed, however, student is obliged to make up missed classes. Teachers will provide reasonable alternatives that permit course objectives and learning outcomes to be met (alternative assessment, an additional paper or project of equivalent intellectual effort, or other option). Student is obliged to be well prepared and actively participate in the discussion and practical activities during classes. Students disturbing their teachers and colleagues, or those who are not prepared for the classes will not be allowed to take the review test from that particular subject. Grades: Final pass in a test form. Review tests will be prepared by the individual teachers and will be based entirely on the specific objectives for each topic. However, because the lecture/class series will not cover all the required material, students who depend on course notes alone will be handicapped. Studying and reading material from textbooks and monographs is essential to success. Medical news from Internet may be also very helpful. To pass the review test student must score more than 59% positive answers. When scores: from 0% - 59% gets unsatisfactory (2.0) and fails the review test; from 60% - 67% gets satisfactory (3.0); - from 68 % - 75% gets satisfactory plus (3.5); from 76 % - 84% gets good (4.0); from 85 % - 93% gets fairly good (4.5); from 94% - 100% gets very good (5.0).

Arithmetic mean of all notes from review tests is a passing grade for the classes and lectures and is one of the two components of the final grade. Student who fails the review test(s) and/or did not present the report must retake the appropriate subject(s) in the written or oral form (test or open task or oral exam). Retakes will be performed at the end of each semester. Student who fails retake(s) gets unsatisfactory grade for classes and 1st term of the final exam. To complete the course Student must pass whole material (an integrative test or open task or oral exam) and get satisfactory grade before being allowed to make-up the final exam. This satisfactory grade is one of the two components of the final grade.

Final exam – in the form of test (70 multiple-choice and/or single-choice questions) that covers the whole subject material studied during the Course (based on classes, lectures, homework, and books). To pass the review test student must score more than 59% positive answers. When scores: from 0% - 59% gets unsatisfactory (2.0) and fails the final exam; from 60% - 67% gets satisfactory (3.0); from 68 % - 75% gets satisfactory plus (3.5); from 76 % - 84% gets good (4.0); from 85 % - 93% gets fairly good (4.5); from 94% - 100% gets very good (5.0). A make-up exam (second term of an exam) may be in the written or oral form (test or open task or oral exam).

Students will be allowed to make up missed first term of the final exam if, and only if, they are excused in advance by the course coordinator or they complete Hygiene & Epidemiology after first term of the final examination (e.g. if they fail an integrative test). Special consideration will be given, however, in the case of unanticipated and excused emergencies such as accident, sudden serious illness, etc.

Final grade - is calculated as a weighted average according to the formula: arithmetic mean of all grades for review tests x 40% + final exam grade x 60%. For students who passed second term of final exam (a make-up exam) final exam grade is calculated as an arithmetic mean of two grades.

The results of the weighted mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Recommended reading:

Hygiene and Epidemiology - Selected Chapters. Bencko, Vladimír et al. subjects: medicine
e-book, 1. Edition, published: January 2020, ISBN: 978-80-246-4313-7, e-book formats PDF

Immunology

Course name	Immunology
Course ID	12.9-WL-LEK-IMM
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	6
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Dr hab, Agata Matejuk, Prof UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	30	Exam
Laboratory	30	Credit with grade
Seminar	15	Credit with grade

Aim of the course

Students in this course will: 1. Gain a basic knowledge of immunology with special focus on the importance of the immune system in medicine. 2. Become acquainted with the immune response in health and disease. 3. Learn about the development, components of immune system, specific and nonspecific humoral and cellular responses and the factors that regulate immunity. 4. Gain the knowledge of the malfunctions of immune system such as hypersensitivity reactions, primary and secondary immune deficiencies and autoimmunity. 5. Get familiar with cancer immunology and transplantation. 6. Learn major modern techniques influenced by immunology used in clinic and research 7. Understand the principles of modern immunotherapy.

Prerequisites: Basic knowledge on anatomy, biochemistry, molecular biology and histology.

Scope

1. Development of the immune system
2. Components and essential features of immune reactions
3. Elements of reproductive immunology
4. Non-specific and specific humoral and cellular immunity
5. Regulation of the immune response
6. Innate and acquired anti-infective immunity
7. Immunodeficiencies
8. Hypersensitivity reactions
9. Autoimmune diseases
10. Cancer immunology
11. The major histocompatibility complex. Immunological aspects of transplantation
12. Pathogenesis and treatment of immune-related diseases
13. Vaccines
14. Immunological diagnostics. Application of immunological techniques in the diagnosis and research of infectious, autoimmune and neoplastic diseases.

Teaching methods:

Lectures and seminars in the form of multimedia presentations. Laboratory classes – problem and case based learning, clinical cases – discussion.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Describes the development and the role of individual components of the immune system. Clarifies the regulation of the immune response. Characterizes the specific and non-specific mechanisms of humoral and cellular immunity.	C.W21	In-class activities, discussion, evaluation test, exam	Labs and lectures
Explains the role and mechanism of action of the major histocompatibility complex.	C.W22	In-class activities, discussion, evaluation test, exam	Labs and lectures
Characterizes various types of hypersensitivity reactions and explains the pathomechanisms of diseases of hypersensitivity. Describes the pathogenesis of primary and secondary immunodeficiencies. Explains the mechanisms of immunomodulation.	C.W23	In-class activities, discussion, evaluation test, exam	Labs, lectures, seminars
Characterizes by basic concepts of tumor Immunology	C.W24	In-class activities, discussion, evaluation test, exam	Labs and lectures
Describes basic definitions of transplantation immunology. Explains basics of donor-recipient matching.	C.W25	In-class activities, discussion, evaluation test, exam	Labs and lectures
Explains the genetic determinants of human blood groups and the serological conflict in the Rh system	C.W06	In-class activities, discussion, evaluation test, exam	Labs, lectures and seminars
Selects appropriate diagnostic methods for the detection of immunodeficiency, allergic diseases, autoimmune and proliferative diseases of the immune system.	C.U08	In-class activities, discussion, evaluation test, exam	Labs and lectures
Able to analyse reactive, defensive and adaptive phenomena and regulatory disturbances caused by an etiological factor	C.U12	In-class activities, discussion, evaluation test, exam	Lectures, seminars
Knows the rules of conducting scientific, observational and experimental research and in vitro research for the development of medicine	B.W29	In-class activities, discussion, evaluation test, exam	Labs and lectures

Assignment conditions

Regular class attendance is a student obligation. One excused absence is allowed, however, student is obliged to make up missed class. Student is obliged to be well prepared and actively participate in the discussion and practical activities during classes. Examinations and Grades:
Condition to be admitted to the final exam is to obtain a positive grade, which is the mean value of the grade from evaluation test (labs) (50% of the available points) and the grade from multimedia presentation (seminars). The final exam is in form of a test containing 60 single-choice questions

and covers the entire thematic scope (labs, seminars and lectures). To pass the exam student must obtain 60% of the points available. Absence will result in failing the exam.
Because the lectures/seminars and labs series will not cover all the required material, studying and reading material from textbooks and monographs, research papers is essential to success.
Grades are based on the percentage of points earned: from 0% - 59% -unsatisfactory (2.0) and fails the test; from 60% - 67% - satisfactory (3.0); from 68 % - 75% - satisfactory plus (3.5); from 76 % - 84% - good (4.0); from 85 % - 93% - fairly good (4.5); from 94% - 100% - very good (5.0)
FINAL GRADE - is the mean value of all forms provided for the completion of the course. The results of the mean value are determined according to the principle: mean 3.25 is the final score of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

RECOMMENDED LITERATURE:

Basic literature

1. K. Abbas, A. H. Lichtman, S. Pillai : „Basic Immunology. Functions and disorders of the immune system". Elsevier,, 2019.
2. K. Abbas, A. H. Lichtman, S. Pillai : „Cellular and Molecular Immunology", 10th Edition, Elsevier,2021.

Additional literature and sources:

1.David Male, R. Stokes Peebles and Victoria Male: " Immunology, 9th Edition, Elsevier, 2020
2. Roitt's Essential Immunology, 13th Edition, Wiley, 2017
Science, Nature, Nature Reviews: Immunology, The Journal of Immunology, Annual Reviews of Immunology, Frontiers in Immunology, Janeway's Immunobiology,

Implants and Artificial Organs - elective course

Course name	**Implants and Artificial Organs**
Course ID	12.0-WL-LEK-PWISN
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	4
ECTS credits to win	2
Course type	elective
Teaching language	English/Polish
Author of syllabus	dr hab. inż. Katarzyna Arkusz, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Laboratory	30	Credit with grade

Aim of the course

The course aims to acquire knowledge of the production, properties, and requirements for implanted products and artificial organs. In addition, to familiarize students with the problems of correcting the functioning of the human body in the event of temporary or permanent damage to human systems or organs.

Prerequisites: Knowledge in the field of human anatomy and physiology.

Scope:

The scope of the seminar exercises has been divided into parts:

1. Introduction to implants and artificial organs - definitions, requirements for implants, classification of implants according to clinical criteria and medical specialties
2. Legal and social problems of organ transplantation
3. Pacemakers (artificial heart, intra-aortic balloon, versus pulsation)
4. Artificial heart-lung (modeling artificial lung ventilation, oxygen generators)
5. Artificial heart. Methods of supporting the work of the heart
6. Artificial kidney (dialysis techniques, capillary membrane technology)
7. Artificial pancreas (biochemical and biological artificial pancreas, open-loop and closed-loop pancreas)
8. Artificial liver (blood detoxification with sorbents).
9. Controlling the activity of skeletal muscles. Active prostheses of the musculoskeletal system. Bioprostheses
10. Orthopedic implants
11. Dental and maxillofacial implants
12. Implants used in osteosynthesis
13. Sight and hearing implant
14. Computer-aided surgical procedures

Practical classes will be held at the Biomaterials and Nanotechnology Laboratory and the Biomechanics Laboratory of the Department of Biomedical Engineering. The projects carried out so far at the Department of Biomedical Engineering include:

Electrochemical characterization of double-walled titanium (IV) oxide nanotubes for potential applications in implantology, 2019/03 / X / ST5 / 01330 NCN, dr inż. Katarzyna Arkusz

Development of an electrochemical biosensor for the detection of selected cytokines on a Ti / TiO2 substrate (Diamentowy Grant, dr inż. Katarzyna Arkusz). Preparation and characterization of self-assembled oxide nanomaterials on implant titanium alloys, N507 082 31/2009, Influence of bending on the in vitro characteristics of the anodic surface layer of Ti6Al4V implant titanium alloy (Dr. Agnieszka Kierzkowska, 3 T08C 015 30).
Scientific achievements and professional experience allow performing exercises in the field of -
artificial kidneys (dialysis techniques, capillary membrane technology).
- artificial pancreas (biochemical and biological artificial pancreas, open-loop and closed-loop pancreas, electrochemical glucose determination).
- parameterization of selected elements of the skeletal system using DICOM photos
- installation of the biostabilizer on the phantom/animal preparation.

Teaching methods

Presenting the content of the seminar exercises using multimedia presentations. During laboratory classes - teamwork (mainly teams of 2 to 4 people) using dialysis equipment and an artificial pancreas.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student uses terminology related to implantology, knows the trends in the field of implants and medical technology development in the field of artificial organs		test preparation of laboratory reports	Laboratory
Student is able to identify selected implant elements and equipment that replace the basic organs of the human body, is able to plan and carry out experiments/measurements in the field of selecting the operating parameters of dialysis devices and other selected artificial organs, is able to use analytical and experimental methods to solve research problems, has the ability to interpret the results of exercise tests laboratories and drawing conclusions		an observation and evaluation of activities during the classes preparation of laboratory reports	Laboratory
Student has general knowledge of basic anatomical systems, as well as artificial implants and transplantology, useful for formulating and solving simple tasks in the field of implantology		an evaluation test	Laboratory
Student is aware of the importance of issues related to implantology and artificial organs in treatment and rehabilitation as well as in everyday human functioning.		an observation and evaluation of activities during the classes preparation of laboratory reports	Laboratory
knows and understands the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine	B.W29	an observation and evaluation of activities during the classes	Laboratory

		preparation of laboratory reports written exam	
is able to obtain and integrate the obtained information about implants and artificial organs from literature, databases and other sources, also in a foreign language, and to interpret and compile them, prepare and present an oral presentation in Polish and a foreign language on selected issues in the field of artificial organs and implants	B.U09 B.U11 B.U13	an evaluation test	Laboratory

Assignment conditions

The pass mark for the course is a written test in the form of a test (40 single-choice questions). Passing the course is possible after giving correct answers to min. 60% of the test questions.

The student may have a maximum of two absences, which he is obliged to justify within five days and is obliged to make up for them within the time agreed with the tutor.

The regulations on the conditions for passing the credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the necessity to switch to the remote credit during the regulatory period, before the session begins.

Other conditions are specified in the Regulations of Studies at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Oshida Y. Surface Engineering and Technology for Biomedical Implants, New York : Momentum Press. 2014

2. Maria Cristina Annesini, Luigi Marrelli, Vincenzo Piemonte, Luca Turchetti, Artificial Organ Engineering, Springer London, 2015

Infectious and Parasitic Diseases

Course name	Infectious and Parasitic Diseases
Course ID	12.0-WL-LekAM-CHZP
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	3
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Prof. dr hab. med. Maria Gańczak

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	30	Credit with grade
Seminar	10	Credit with grade
Lecture	20	Exam

Aim of the course

Providing up-to-date knowledge in the field of selected infectious and parasitic diseases, taking into account epidemiology, clinical picture, as well as diagnostics and prevention methods. Developing the skills of treatment of the most common infectious and parasitic diseases. Acquisition by the student of basic skills necessary in the care of a patient with an infectious and parasitic disease, including ordering tests and interpreting the results of clinical trials.

Prerequisites: basic knowledge on microbiology, parasitology, physiology and pathophysiology.

Scope

1. Basics of epidemiology of infectious diseases; Current threats regarding epidemics and pandemics.
2. Viral hepatitis.
3. HIV infection and AIDS disease.
4. Childhood infectious diseases.
5. Pre- and post-exposure prophylaxis in infectious diseases.
6. Nosocomial infections; Antibiotic policy and antimicrobial resistance versus nosocomial infections prevention.
7. Influenza, SARS, COVID-19 and other respiratory infections.
8. Diarrhoea of infectious origin.
9. Tropical Infectious diseases principles pathogens and practice.
10. Infectious diseases of the nervous system.
11. Vector diseases, including tick-borne diseases.
13. Parasitic diseases.

Teaching methods:

Lectures in the form of multimedia presentations.

Clinic-based classes – problem and case based learning, clinical cases – discussion, student's active participation in the performance of basic screening and laboratory tests. Student's active participation in clinical case reports.

Learning outcomes and methods of verification

Outcome description	Outcome Symbol	Verification Methods	Form of activity
Student knows the environmental and epidemiological conditions of the most common infectious diseases;	E.W1	Activity during classes, discussion, presentation, evaluation test, exam	Clinic-based classes and lectures
Student knows the regulations regarding vaccination schedules according to the National Immunization Program	E.W2	Activity during classes, discussion, presentation, evaluation test, exam	Clinic-based classes and lectures
Student knows the basic issues of prevention and the rules of post-exposure prophylaxis in the case of occupational exposure to blood-borne pathogens;	E.W32	Activity during classes, discussion, presentation, evaluation test, exam	Clinic-based classes and lectures
Student knows the rules of conduct in case of detection of an infectious disease;	E.W33	Activity during classes, discussion, presentation, evaluation test, exam	Clinic-based classes and lectures
Student knows and understands the causes, symptoms, principles of diagnosis and therapeutic and prophylactic management in the most common bacterial, viral, parasitic and fungal diseases, including pneumococcal infections, viral hepatitis, AIDS, sepsis and nosocomial infections.	E.W34	Activity during classes, discussion, presentation, evaluation test, exam	Clinic-based classes and lectures
Student conducts a medical history with an adult patient suffering from an infectious disease.	E.U1	Activity during classes, discussion, presentation, evaluation test	Clinic-based classes
Student conducts a full and targeted physical examination of an adult patient suffering from an infectious disease.	E.U3	Activity during classes, discussion, presentation, evaluation test	Clinic-based classes
Student conducts differential diagnosis of the most common infectious diseases of adults and children.	E.U12	Activity during classes, discussion, presentation, evaluation test	Clinic-based classes
Student plans diagnostic, therapeutic and prophylactic procedures regarding a patient suffering from an infectious disease.	E.U16	Activity during classes, discussion, presentation, evaluation test	Clinic-based classes
Student interprets the results of laboratory tests and identifies the causes of abnormalities regarding a patient suffering from an infectious disease.	E.U23	Activity during classes, discussion, presentation, evaluation test	Clinic-based classes
Student plans to manage an occupational exposure to a selected blood-borne infection.	E.U26	Activity during classes, discussion,	Clinic-based classes

		presentation, evaluation test	

Assignment conditions

Principals of attendance**:** Regular class attendance is a student obligation. Four excused absences are allowed, however, student is obliged to make up missed classes. Teachers will provide reasonable alternatives that permit course objectives and learning outcomes to be met (alternative assessment, an additional paper or project of equivalent intellectual effort, or other option).
Student is obliged to be well prepared and actively participate in the discussion and practical activities during classes. Students who are not prepared for the classes will not be allowed to take the review test from that particular subject.
Exams and grades. To complete the course (to get a credit) students have:
- to receive pass grade for a test which checks knowledge level regarding lectures delivered during the first month of the course;
- present prepared case-report based on knowledge of post-exposure prophylaxis regarding selected infectious disease
- to receive pass grade for a test which checks knowledge level regarding clinic-based classes
Lectures Test: in writing (single-choice test, 60 closed questions).
Note: The regulations on the conditions of credit correspond to the conditions of direct credit. Due to the current epidemiological situation regarding the SARS-Cov-2 pandemic, it is reserved to introduce changes in the event of the need to switch to remote credit during the statutory time.

The lectures will not cover all the required material, students who depend on course notes alone will be handicapped. Studying and reading material from textbooks and monographs is essential to success.

Obtaining 60% of the points possible to obtain is a condition for passing the lectures. To pass the review test student must score more than 59% positive answers. When scores:
- 0% - 59% gets unsatisfactory (2.0) and fails the lectures test; - 60% - 67% gets satisfactory (3.0); 68 % - 75% gets satisfactory plus (3.5); 76 % - 84% gets good (4.0); 85 % - 93% gets fairly good (4.5); 94% - 100% gets very good (5.0).

Passing the clinic-based classes: In cases of absence, the student should fill in the gaps in the form and date agreed with the lecturer, no later than one week before the end of the semester. **Clinic-based classes Test:** in writing (single-choice test, 60 closed questions). Note: The regulations on the conditions of credit correspond to the conditions of direct credit. Due to the current epidemiological situation regarding the SARS-Cov-2 pandemic, it is reserved to introduce changes in the event of the need to switch to remote credit during the statutory time.

The clinic-based classes will not cover all the required material, students who depend on course notes alone will be handicapped. Studying and reading material from textbooks and monographs is essential to success.

Obtaining 60% of the points possible to obtain is a condition for passing the lectures. To pass the review test student must score more than 59% positive answers. When scores:
- 0% - 59% gets unsatisfactory (2.0) and fails the lectures test; - 60% - 67% gets satisfactory (3.0); 68 % - 75% gets satisfactory plus (3.5); - 76 % - 84% gets good (4.0); - 85 % - 93% gets fairly good (4.5); 94% - 100% gets very good (5.0). **The final grade** is the arithmetic mean of the lectures and clinic-based classes tests. The results of the arithmetic mean are determined according to the principle: the mean of 3.0-3.24 is the final grade of 3.0; an average of 3.25-3.74 is a final grade of 3.5; an average of 3.75-4.24 is a final grade of 4.0; an average of 4.25-4.74 is a final grade of 4.5; an average of 4.75-5.0 is a final score of 5.0.

A retake exam (second term of an exam) may be in the written or oral form (test or open task or oral exam).

Students will be allowed to make up missed first term of the final exam if, and only if, they are excused in advance by the course coordinator. Special consideration will be given in the case of unanticipated and excused emergencies such as accident, sudden serious illness, etc.For students who passed second term of final exam (a make-up exam) final exam grade is calculated as an arithmetic mean of two grades.

RECOMMENDED TEXT-BOOKS

1. Wright WF. Essentials of Clinical Infectious Diseases. Wyd. Springer Publishing 2018.
2. Kasper DL, Fauci AS. Harrison's Infectious Diseases. 3rd Ed., McGraw Hill Education 2015.
3. Southwick F. Infectious Diseases: A clinical short course. McGraw Hill Education 2020.

SUPPLEMENTARY MATERIAL

1. Medical journals accessible on Pubmed and on the university library website: http://www.bu.uz.zgora.pl/

Information technology

Course name	Information Technology
Course ID	11.9-WL-LekAM
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	2
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Maciej Jackowski MD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Laboratory	30	Credit with grade

Aim of the course:
The goal of the course is to make students familiar with the principles of using computer and information technologies in medicine. Paying attention to safety rules, data security, personal data protection, learning about the possibilities of computerization in health care. Presentation of existing e-health solutions in Poland (P1).

Prerequisites: basic knowledge on information technology (on the at the high school level).
Scope:
1. Fundamental concepts of information.
2. Algorithms, introduction to encryption and information security.
3. Information security.
4. Computer security.
5. Binary operations.
6. Image, graphics, computer graphics, digital images, imaging systems.
7. Medical imaging.
8. Electronic medical records (electronic medical documentation).
9. Personal data protection.
10. Information management in health care and dentistry.
11. Medical applications.
12. Search, processing and storage of information.
13. Use of medical databases.
14. Multimedia presentation.
15. Creating electronic forms, spreadsheets and databases.

TEACHING METHODS:
Laboratory in the form of practical classes with multimedia presentations and and discussions. Exercises with use computer equipment with appropriate dedicated software

LEARNING OUTCOMES AND METHODS OF THEIRS VERIFICATION

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows and understands the possibilities of modern telemedicine as a tool supporting the work of a doctor.	B.W28	Activity during classes, discussion, evaluation practical test - score thresholds	Labs

Student can use databases, including internet databases, to search necessary informations and can use appropriate methods of presenting the results.	B.U10, B.U11	Activity during classes, discussion, evaluation of the student's practical skills	Labs
Student knowns and understands the fundamental information and statistical methods used in medicine, including medical databases, spreadsheets and the basics of computer graphics.	B.W26	Activity during classes, discussion, evaluation of the student's practical skills	Labs

Assignment conditions

Regular class attendance is a student obligation. Classes end with a credit, which is the result of completing 4 tasks during the semester. Every task is required. The tasks will concern the material carried out during classes, i.e. configuration of security measures in the operating system, preparation and discussion of a given topic - presentation, demonstrating the ability to read data in dicom format, search for data included in cesium registers (e.g. rpwdl), issuing an electronic document (e-recepts, e-referrals, medical records) using office software. In each case, detailed score thresholds will be given, in order to pass the task, it is necessary to obtain 60% of points. The final grade in the subject is the weighted average of all tasks completed.

In the event of absence from the classes, the tasks may be completed after prior, individual arrangement of the date, however, the absence of 1/3 of the classes (5) without giving a reason results in the failure to pass the course.

In the event of failure to pass individual tasks, there is a possibility of improving each one, and in the event of failure to complete each task within the statutory deadline (by the end of the semester), it is possible to improve during the session.

RECOMMENDED BOOKS:

1. Materials of the teacher made available to students during classes.
2. Rudowski R. (red.) *Informatyka medyczna*. Wyd. Naukowe PWN Warszawa 2012.
3. Tadeusiewicz R. *Informatyka Medyczna*, Wyd. Uniwersytet Marii Curie-Skłodowskiej w Lublinie 2011.
4. Lambert J., Frye C. *Microsoft Office 2019 Krok po kroku*. Wyd. APN Promise Warszawa 2019.
5. *Ustawa z dnia 28 kwietnia 2011 r. o systemie informacji w ochronie zdrowia*, z póź. zmianami, t.j. Dz. U. z 2021 r. poz. 666.
6. *Ustawa z dnia 5 grudnia 1996 r. o zawodach lekarza i lekarza dentysty*, t.j. Dz. U. z 2021 r. poz. 790.
7. *REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)*.
8. Bosworth S., Kabay M. E., Whyne E., *Computer security handbook*. John Wiley & Sons, Inc., Hoboken, New Jersey, 2009.

Internal diseases

Course name	Internal diseases
Course ID	12.0-WL-LEK-CHWEWN
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	11, 12
ECTS credits to win	17
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Iwona Towpik MD, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	270	Exam

Aim of the course:

1. Familiarizing the Student with environmental and epidemiological conditions and causes, symptoms, diagnoses and therapeutic procedures with regard to the most frequent internal diseases in adults and related complications
2. Practical learning to recognize medical problems and priorities medical management, taking into account life-threatening conditions and those requiring immediate intervention for internal medicine reasons.
3. Correct planning and interpretation of test results, making a diagnosis, differential diagnosis.
4.To implement appropriate and safe therapeutic management with anticipation of its consequences.
5. Acquire skills in conducting medical record
6. Acquiring the ability to communicate properly with patients and their families and to convey unfavorable information, respecting medical confidentiality and patient rights.
7. Principles of teamwork and interdisciplinary collaboration, sharing knowledge and skills.
8. Preparing the student to practice medicine

PREREQUISITES: credits from the course propedeutics of internal diseases and particular departments of internal diseases

SCOPE:

Causes, symptoms, diagnoses and therapeutic procedures with regard to the most frequent internal diseases in adults and related complications:

a) circulatory system diseases incl.: ischemic heart disease, organic heart diseases, endocardium, myocardium and pericardium diseases, heart failure (acute and chronic), angiopathy, primary and secondary hypertension and pulmonary hypertension,

b) respiratory tract diseases incl.: airway diseases, chronic obstructive pulmonary diseases, bronchial asthma, bronchiectasis, mucoviscidosis, respiratory tract infection, interstitial disease of lungs, pleura and mediastinum, obstructive and sleep apnea, acute and chronic respiratory failure, respiratory system neoplasm

c) alimentary system diseases, inlc.: stomatopathy, esophagus diseases, gastrosis, diseases of duodenum, enteropathy, diseases of hepatopathy, pancearopathy, cholepathy, cholecystopathy

d) endocrine system diseases, incl.: disorders of hypothalamus, hypophysis, thyroid, parathyroid, adrenal cortex, adrenal medulla, ovariopathy, orchiopathy, neuroendocrine tumour disease, endocrine polyglandular syndrome, different types of diabetes and metabolic syndrome, hypoglycemia, obesity and dyslipidemia

e) nephropathy and diseases of urinary tract incl. : acute and chronic renal failure, diseases of renal glomerules and interstitial diseases of kidneys, renal cyst, nephrolithiasis, urinary tract infections, urinary tract neoplasm, in particular bladder cancer and renal cancer
f) diseases of hematopoietic system, incl.: panmyelophthisis, anemia, granulocytopenia and granulocytosis, trombocytopenia, acute leukemia, myeloproliferative and myelodysplastic-myeloproliferative diseases, myelodysplasia syndrome, B and T cell lymphoma, hemorrhagic diathesis, thrombophilia, life-threatening states in hematology, dyshematopoiesis in the failure of other organs
g) rheumatic diseases, incl.: systemic connective tissue disease, systemic vasculitis arthritis of the spine, metabolic diseases of bones, in particular osteoporosis and arthrosis, uratic gout
h) allergic diseases, incl.: anaphylaxis and anaphylactic shock, angioneurotic edema
i) water-electrolyte and base-acid disorders: dehydration, overhydration, electrolytic equilibrium disorder, acidosis and alkalosis
The above-mentioned scope of problems will be implemented in thematic blocks during classes in individual Clinical Departments and specialist outpatient clinics.
Each student in a 2-3 person group will work under the supervision of 1 doctor in a given department.

TEACHING METHODS:
Clinical exercises at the bedside. Demonstration and exercise classes. Case analysis. Discussion. Group work. Tutoring. Mentoring. Practical activities of the PBL type - "Problem Based Learning". Practical classes in outpatient clinics.

LEARNING OUTCOMES AND METHODS OF THEIRS VERIFICATION

Outcome description	Outcome symbols	Methods of verification	The class form
knows principles of research, observations and experiments and ***in vitro*** tests supporting the development of medicine	B.W34	Activity during classes, discussion	Clinical classes
takes history interview and carries out complete and guided physical examination of adult patient	E.U01 E.U03	Activity during classes, discussion, practical exam	Clinical classes
knows and recognizes causes, symptoms, diagnoses and therapeutic procedures with regard to the most frequent internal diseases in adults and related complications including: circulatory system diseases incl.: ischemic heart disease, organic heart diseases, endocardium, myocardium and pericardium diseases, heart failure (acute and chronic), angiopathy, primary and secondary hypertension and pulmonary hypertension; respiratory tract diseases incl.: airway diseases, chronic obstructive pulmonary diseases, bronchial asthma, bronchiectasis, mucoviscidosis, respiratory tract infection, interstitial disease of lungs, pleura and mediastinum, obstructive and sleep apnea,	E.W07	Activity during classes, discussion, practical exam, test	Clinical classes

acute and chronic respiratory failure, respiratory system neoplasm; alimentary system diseases, inlc.: stomatopathy, esophagus diseases, gastrosis, diseases of duodenum, enteropathy, diseases of hepatopathy, pancearopathy, cholepathy, cholecystopathy; endocrine system diseases, incl.: disorders of hypothalamus, hypophysis, thyroid, parathyroid, adrenal cortex, adrenal medulla, ovariopathy, orchiopathy, neuroendocrine tumour disease, endocrine polyglandular syndrome, different types of diabetes and metabolic syndrome, hypoglycemia, obesity and dyslipidemia; nephropathy and diseases of urinary tract incl. : acute and chronic renal failure, diseases of renal glomerules and interstitial diseases of kidneys, renal cyst, nephrolithiasis, urinary tract infections, urinary tract neoplasm, in particular bladder cancer and renal cancer; diseases of hematopoietic system, incl.: panmyelophthisis, anemia, granulocytopenia and granulocytosis, trombocytopenia, acute leukemia, myeloproliferative and myelodysplastic-myeloproliferative diseases, myelodysplasia syndrome, B and T cell lymphoma, hemorrhagic diathesis, thrombophilia, life-threatening states in hematology, dyshematopoiesis in the failure of other organs; rheumatic diseases, incl.: systemic connective tissue disease, systemic vasculitis arthritis of the spine, metabolic diseases of bones, in particular osteoporosis and arthrosis, uratic gout; allergic diseases, incl.: anaphylaxis and anaphylactic shock, angioneurotic edema; water-electrolyte and base-acid disorders: dehydration, overhydration, electrolytic equilibrium disorder, acidosis and alkalosis			
interprets laboratory investigations and identifies reasons for deviations, performs basic procedures and operations	E.U24 E.U29	Activity during classes, discussion, practical exam, test	Clinical classes

knows environmental and epidemiological conditions of most frequent internal diseases	E.W01	Activity during classes, discussion, practical exam, test	Clinical classes

Assignment conditions

1.Preparation for classes, attendance and active participation in classes are the basis for the student's admission to the examination. In the case of 1-2 excused absences in a given class block, the form of making up for them should be agreed with the course tutor. In the case of more than 2 excused absences, the whole class block should be repeated with another group. Absences must be justified by an appropriate document certifying illness (sick leave) or a fortuitous accident. A student's absence during an examination that has been excused entitles the Course Coordinator to set an examination date, which will be treated as the first date for the Student concerned.

2.Confirmation in the Practical training record book of the knowledge and practical implementation of procedures in the field of internal diseases (confirmation of all required procedures is a condition for to take the practical exam).

Examinations and Grades. Passing of the practical exam (minimum grade of satisfactory-3,0), which will be conducted on the last day of the course by the class instructor or Clinical Department Head in which the group finishes the programme block(in the summer semester). This pass is a prerequisite for taking the test examination. Passing of the test examination organised by the Course Coordinator after completion of the classes by all groups - single-choice test, closed questions. To pass the test student must score more than 59% positive answers. When scores: from 0% - 59% gets unsatisfactory (2.0) and fails the final exam; - from 60% - 67% gets satisfactory (3.0); from 68 % - 75% gets satisfactory plus (3.5); from 76 % - 84% gets good (4.0); from 85 % - 93% gets fairly good (4.5); from 94% - 100% gets very good (5.0). A make-up exam (second term of an exam) may be in the written or oral form (test or open task or oral exam). Students will be allowed to make up missed first term of the final exam if, and only if, they are excused in advance by the course coordinator or they complete Internal Diseases Course after first term of the test exanimation (eg. if they fail an integrative test). Special consideration will be given, however, in the case of unanticipated and excused emergencies such as accident, sudden serious illness, etc.

Final grade – is the grade for the test. For students who passed second term of test (a make-up exam) final exam grade is calculated as an arithmetic mean of two grades. The results of the weighted mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Regulations on credit conditions correspond to the conditions for direct credit, subject to the possibility of changes in the event of the need to switch to remote credit in the regulatory time, before the start of the session.

Other regulations not mentioned are specified in the Rules and Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

RECOMMENDED BOOKS:

Essentials of Internal Medicine - 4th Edition – Elsevier ; Simon O'Connor Nicholas J Talley, Brad Frankum; ISBN: 9780729543125; https://www.elsevier.com › books

Internal Diseases - Diabetology

Course name	Internal Diseases - Diabetology
Course ID	12.0-WL-LEK-CHWDI
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	7
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Iwona Towpik MD, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	10	Credit with grade
Clinical classes	15	Credit with grade
Seminar	5	Credit with grade

Aim of the course:
To acquaint a student with the current knowledge concerning epidemiology, pathogenesis, clinical manifestations and treatment of different types of diabetes and with the latest scientific data on diabetology. Presentation of practical aspects of modern diabetology achievements in the field of modern methods and tools of self-control, insulin therapy and progress in pharmacotherapy of diabetes type 2. Developing the skills of educating the patient and his family and implementing the principles of diabetes prevention. The most important goal is to develop and improve practical diagnostic and therapeutic skills along with differential diagnosis in terms of various types of diabetes and their acute and chronic complications.

PREREQUISITES: basic knowledge of the physiology and pathophysiology of the pancreas, pathophysiology of obesity and the biochemical basis of carbohydrate metabolism**.**

SCOPE:
Lectures:
1.Epidemiology of diabetes;
2 .Etiopathogenesis of diabetes and the chronic complications of diabetes;
3. Diagnosis and classification of diabetes and disorders of carbohydrate metabolism;
4. Clinical manifestation of hyperglycaemia;
5. Symptoms and consequence of hypoglycaemia.
6. Acute hyperglycemic states: diabetic ketoacidosis, hyperglycemic-hypermolytic state, actate acidosis.
7.Elements of diabetes treatment: lifestyle modification (diet, physical activity), pharmacological treatment, self-control.
8.Criteria of therapeutic targets in diabetes.
9.Treatment of diabetes type 2; treatment of diabetes type 1.
10. Prevention, diagnosis and treatment of chronic complication of diabetes (microangiopathy and macroangiopathy);
11. Novel technologies in diabetes monitoring and treatment (continuous glucose monitoring systems, personal insulin pumps)
Clinical classes (including Seminars):

1.Medical interview with a focus on the elements characteristic for diabetes.
2. Diagnostic difficulties in the diagnosis of diabetes in an adult (typology of diabetes).
3.Phisical examination including the assessment of chronic diabetes complications and complications of insulin therapy.
4. Treatment of acute diabetes complications - case-based practical training,
5. Therapeutic decisions in diabetic patients taking into account the goals of treatment and the interpretation of additional tests results.
6. Different kinds of insulin, glucagon, insulin pens, insulin pumps, glucometers, continuous glucose monitoring systems - demonstration and practical exercises.
7. Determination of insulin treatment regimen and modification of insulin doses.
8. Specific clinical problems in diabetic patients: the problem of diabetic foot syndrome and other chronic complications.
9. Pregnant woman with diabetes care.
10. The role of education in diabetic patients treatment, practical application of various techniques and models of patient education.

Teaching methods:

Lectures in the form of multimedia presentations.

Seminars: introduction to exercises with the use of short multimedia presentations, direct presentation of characteristic elements of medical interview and phisical examination of diabetic patients, keeping medical records, presentation of equipment used to monitor and treat diabetes, and various forms of diabetes education.

Clinical exercises: methods of clinical problems solving, work with the patient with a complete physical examination as well as the analysis of the results of additional examinations and medical documentation, preparation of reports on clinical cases, discussion held in groups of 5 at the Clinical Department of Internal Medicine and the Clinical Diabetes Clinic.

CONSULTATIONS:

During the course of the diabetology curriculum, instructors will be available to students outside of class hours, and information on the dates of the consultations of individual teachers will be posted on the website and/or platform of CM UZ

LEARNING OUTCOMES AND METHODS OF THEIRS VERIFICATION

Outcome description	Outcome symbols	Methods of verification	The class form
A student performs medical interview with adult diabetic patient	E.U01	Activity during clinical exercises, discussion, credits, tests	Lectures, and clinical exercises
A student performs complete and fokused physical examination of the adult diabetic patient	E.U03	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
Astudent evaluates general state, state of patient’s consciousness and awareness	E.U07	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
A student assesses and describes the patient's somatic and psychological state	E.U13	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises

A student interprets laboratory tests and identifies causes of deviations	E.U24	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
A student keeps patient's medical records	E.U38	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
A student performs basic medical procedures including simple strip tests and blood glucose measurements	E.U29	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
A student knows the environmental and epidemiological conditions of the diabetes and most common diseases	E.W1	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
A student knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relations to the various types of diabetes occuring in adults and their chronić and acute complications	E.W7	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
A student knows the types of biological materials used in laboratory diagnostics and the principles of collecting material for tests	E.W37	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises
A student plans diagnostic, therapeutic and prophylactic procedures in a patient with diabetes	E.W7, E.U16, E.U17, E.U18, E.U20, E.U32	Activity during clinical exercises, discussion, credits, tests	Lectures and clinical exercises

Assignment conditions

Absences from clinical classes: Regular class attendance is a student obligation. Two excused absences are allowed, however, student is obliged to make up missed classes. In the case of an excused absence from 1 class, the Student should make up the shortfall by the date agreed with the teacher. When absence from 2 classes Student is obliged to attend exercises with another group. More than 2 absences result in failure to pass the course. Absence of a student during the course, which is justified by an appropriate document certifying illness (sick leave) or accident entitles the Course Coordinator to set a credit term, which will be treated as the first term for the Student.

Credits and Grades: Credit for lectures: in written form (one-choice test, closed questions, 20 questions). Obtaining 60% of the points possible to obtain is a condition for passing the lectures and admission of the Student to clinical classes. In the case of failure to obtain credit for the test, improvement in written form (single-choice test, closed questions closed, 20 questions) or oral - determined by the course coordinator.

Credit for seminars and exercises: the basis for credit is the attendance at all clinical classes and obtaining positive grades from all classes, scheduled to be carried out as part of the program. Credit is given for practical skills in accordance with the program - examination of the patient and discussion of the case, with suggestions for diagnostic and therapeutic suggestions (this is a pass without a grade, which is a prerequisite for taking a written test) and a written colloquium (a single-

choice test, 20 questions closed) to check the knowledge after the end of clinical classes - a passing grade is a minimum of 60% of the possible points. In the event of failure to obtain a passing grade improvement in written or oral form - to be determined by the course coordinator. **Method of calculating grades:** from 0% - 59% gets unsatisfactory (2.0) and fails the final exam; - from 60% - 67% gets satisfactory (3.0); from 68 % - 75% gets satisfactory plus (3.5); from 76 % - 84% gets good (4.0); from 85 % - 93% gets fairly good (4.5); from 94% - 100% gets very good (5.0). Final grade; The final grade is the arithmetic mean of all forms provided for the course (the average of the grades of the test for the completion of lectures and the test at the end of the clinical classes). The results of the arithmetic mean are determined according to the following rule: the mean of 3.25 constitutes the final grade of 3.5; the mean of 3.75 constitutes the final grade of 4.0; the mean of 4.25 constitutes the final grade of 4.5; the average of 4.75 constitutes the final grade of 5.0.

Regulations on credit conditions correspond to the conditions for direct credit, subject to the possibility of changes in the event of the need to switch to remote credit in the regulatory time, before the start of the session.

Other regulations not mentioned are specified in the Rules and Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

RECOMMENDED BOOKS:

1. Holt, Cockram, Flyvbjerg, Goldstein. Textbook of Diabetes, 5th Edition | Wiley https://bcs.wiley.com/he-bcs/Books?action=index&itemId=1118912020&bcsId=10568
2. 2022 Guidelines on the management of patients with diabetes. A position of Diabetes Poland (currenttopicsindiabetes.com)
3. 2022 ADA Standards of Medical Care in Diabetes. Diabetes care https://diabetesjournals.org/care/issue/45/Supplement_1

Internal Diseases - Gastroenterology

Course name	Internal Medicine - Gastroenterology
Course ID	12.0-WL-LekAM-CHWG
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Prof. dr hab. Wojciech Błogowski

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	20	Credit with grade
Seminar	5	Credit with grade
Lectures	10	Credit with grade

Aim of the course

To acquaint the student with the pathophysiological mechanisms and symptomatology of diseases of the human gastrointestinal tract. Obtaining knowledge by the student on: the definition of morbidity, etiology, pathogenesis, clinical symptoms, additional tests, differential diagnosis, final diagnosis, treatment, prognosis and the course of diseases of the digestive system. Repetition of knowledge on the pathophysiology of digestive system diseases. Familiarizing students with the prevention of digestive system diseases, as well as obtaining knowledge about the general diagnosis of diseases of the digestive system, familiarizing the student with diagnostic and therapeutic tests used in the diagnosis of gastrointestinal diseases (primarily endoscopy and ultrasound apparatus). To acquaint the student with the latest scientific achievements in gastroenterology.

Prerequisites: Basic knowledge of medical ethics and clinical medicine, including elements included in preclinical education, such as clinical immunology, clinical genetics, radiology and pathomorphology.

Scope:

Lectures and seminars: Symptomatology of neoplastic diseases of the gastrointestinal tract. Gastro-esophageal reflux disease, Barret's esophagus, and esophageal cancer. Stomach tumors. Colon cancer.

Tumors of the liver and bile ducts. Pancreatic tumors. Diagnostic tests in oncological diseases of the gastrointestinal tract. Laboratory and biochemical tests in the diagnosis of neoplasms of the digestive system. Imaging methods in the diagnosis of neoplastic diseases of the digestive system.

Clinical classes: Symptomatology of gastrointestinal diseases. Diseases of the stomach and duodenum - other than cancer. Diseases of the small intestine. Colon diseases - other than cancer. Functional diseases of the digestive tract. Liver and biliary diseases - other than cancer. Acute and chronic pancreatitis. Bleeding from the gastrointestinal tract. Diagnostic research in gastroenterology.

Teaching methods: Clinical classes in groups of 5 people conducted in the internal medicine ward and in the gastroenterology clinic and endoscopic laboratories through direct work with the patient. The student learns the principles of patient preparation for endoscopic examinations. During the course, the student improves the skills of subjective and objective examination, establishing the

initial diagnosis, suggestions for laboratory and laboratory tests, their interpretation, differential diagnosis, final diagnosis, and a proposal for treatment procedures in hospitalized patients according to the topic of seminars. Participation of students in medical celebrations. Presentation of the case by a student in front of a group of students and an academic teacher. Independent development of the history of the disease, under the supervision of an academic teacher. Lectures conducted in the form of multimedia presentations.

Learning outcomes and methods of their verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows and understands the environmental and epidemiological conditions of the most common diseases of the gastrointestinal tract	E.W01	a discussion activity during the classes	Lecture Seminar Clinical classes
is able to recognize, at a basic level, clinical conditions occurring in patients with gastrointestinal diseases that require consultation with other specialists (including, in particular, surgeons and oncologists)	E.U32	a discussion activity during the classes	Lecture Seminar Clinical classes
is able to prepare, interpret and keep the patient's medical documentation at a basic level	E.U38	a discussion activity during the classes	Lecture Seminar Clinical classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most common diseases of the gastrointestinal tract occurring in adults and their complications	E.W03	a discussion activity during the classes	Lecture Seminar Clinical classes

Assignment conditions

The condition for completing the course is: participation in the classes provided for in the program of studies and demonstrating the correct medical attitude and knowledge provided for in this program of the course.

Credit for lectures and seminars: Passing the material of lectures and seminars will take place after the end of the series of lectures and seminars in the form agreed by the person conducting these classes with students (test or oral form). In the case of the test form, the student will be solving a test consisting of about 15-20 single-choice questions, to which the student must correctly answer at least 60% in order to obtain a positive grade. Depending on the number of correct answers, appropriate grades will be assigned: 95-100% grade 5.0; 85-95% rating 4.5; 75-85% rating of 4.0; 65-75 rating 3.5; 60-65% rating 3.0.

Completion of clinical classes: The completion of the clinical course material will take place after the end of the course in the form agreed by the person conducting the classes (test or oral form). The practical skills acquired during the exercise cycle will be checked 1) by skilfully discussing the differential diagnosis process in a given clinical situation presented in the form of a question during the oral test, or 2) by selecting the correct answer to questions regarding specific clinical cases described in the form of test questions during the test. test. In cases of excused absences (not exceeding 50% of all classes), the student should fill in the gaps in the time and form agreed with the person conducting the classes in accordance with the study regulations.

The final grade is the arithmetic mean of all forms provided for the completion of the course. The results of the arithmetic mean are determined in accordance with the principle: mean 3.25 is the final score of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0. In the event of failure to pass the lectures and exercises before the first exam date, in accordance with the regulations of studies, the student will receive an unsatisfactory grade on the first date and agree on the form and date of re-approaching a given part of the course (lectures / seminars and / or exercises) with the person conducting the given classes.
The regulations on the conditions for passing a credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the necessity to switch to remote credit during the statutory time, before the start of the session.

Other not mentioned regulations are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Szczeklik A. (ed.) Internal Diseases. Ed. Practical Medicine Krakow 2005 (current - newest version)

Further reading

1. Dąbrowski A. (ed.) Gastroeterologia part. 1 and 2. Medical Tribune Polska, Warsaw, 2011.

Internal Diseases - Hematology

Course name	Internal diseases - hematology
Course ID	12.0-WL-LEK-CHWHE
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Mirosław Franków, MD, PhD Katarzyna Brzeźniakiewicz-Janus, MD, PhD, associate prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	5	Credit with grade
Clinical classes	20	Credit with grade
Seminar	10	Credit with grade

Aim of the couruse:

The aim of education is to familiarize students with modern knowledge in the field of hematological system diseases, to acquire the ability to recognize the symptoms of hematological diseases. The student learns the principles of diagnostics and interpretation of additional tests, participates in invasive tests and the process of planning treatment with cytostatics. To acquaint the student with the latest scientific achievements in hematology. Acquiring by the student the basic skills necessary in conducting clinical trials and integrating clinical knowledge and skills with scientific evidence. The student should develop communication and education skills with patient and it's family members.

Prerequisites: Knowledge of anatomy, histology, physiology, pathophysiology, pathomorphology

Scope: Hematopoiesis. Anemia. Pancytopenia. Lymphadenopathy. Hypersplenism. Acute and chronic leukemia. Myelodysplastic syndromes. Multiple myeloma. Non-Hodgkin's lymphomas. Hodgkin's lymphoma. Myeloproliferative neoplasms. Haemorrhagic disorders. States of hypercoagulability. Disorders of hemostasis. Emergencies in hematology. Principles of chemiotherapy. Basics of haematopoietic cel transplantation. The effect of drugs on disturbances in blood morphological parameters.

Education methods

Lecture: giving method, informative lecture with the use of multimedia presentations.

Seminars: a teaching method with the use of multimedia presentations, conducted in groups of up to 10 people during clinical classes. Classes include an analysis of clinical cases with a problematic discussion of the results obtained individually and working in a group.

Clinical classes in groups of 5 people conducted in the hematology department and in the hematology clinic. The emphasis within the practical teaching is placed on acquiring the skills of early detection and planning of diagnostics of diseases of the hematopoietic system. During the tutorials, the student improves the skills of subjective and physical examination, establishing the initial diagnosis, suggestions for laboratory and laboratory tests, their interpretation, differential

diagnosis, final diagnosis, and a proposal for treatment procedures in hospitalized patients according to the topic of seminars. Participation of students in medical visitation of the hospitalized patients. Each student will present a case in front of the student group and the academic teacher. Independent study of the history of the disease, under the supervision of an academic teacher.

Learning outcomes for the subject /module

Description of the effect	**Symbols effects**	**Verification methods**	**Form of assessment**
Knows and understands the environmental and epidemiological conditions of the most common diseases;	E.W01	Control during classes, discussion Colloquium, test	Lecture Seminar Clinical classes
Is able to lead patient's medical record	E.U38	Control during classes, discussion Colloquium, test	Lecture Seminar Clinical classes
is able to carry out the differential diagnosis of the most common adult diseases.	E.U12	Control during classes, discussion Colloquium, test	Lecture Seminar Clinical classes
can perform basic medical procedures and procedures, including: 1) body temperature measurement (surface and deep), pulse measurement, non-invasive blood pressure measurement, 2) monitoring of vital signs using a cardiomonitor, pulse oximetry, 3) oropharyngeal tube insertion, 4) intravenous, intramuscular and subcutaneous injections, peripheral venous cannulation, peripheral venous blood collection, blood culture collection, arterial blood collection, arterialized capillary blood collection, 5) nasal, throat and skin swab collection, 6) urinary bladder catheterization in women and men, enema, 7) standard resting electrocardiogram with interpretation, 8) simple strip tests and blood glucose measurement;	E.U29	Control during classes, discussion Colloquium, test	Lecture Seminar Clinical classes
is able to conduct a medical interview with an adult patient	E.U01	Control during classes; discussion Colloquium; test	Lecture Seminar Clinical classes
can plan specialist consultations	E.U32	Control during classes; discussion Colloquium, test	Lecture Seminar Clinical classes
is able to assess and describe the somatic and mental state of a patient	E.U13	Control during classes; discussion Colloquium, test	Lecture Seminar Clinical classes

is able to plan diagnostic, therapeutic and prophylactic procedures	E.U16	Control during classes, discussion colloquium test	Lecture Seminar Clinical classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most common internal diseases occurring in adults and their complications: anemia, bleeding disorders, states of bone marrow failure	E.W07	Control during classes, discussion Colloquium, test	Lecture Seminar Clinical classes
is able to carry out a full and targeted physical examination of an adult patient	E.U03	Control during classes; discussion Colloquium, test	Lecture Seminar Clinical classes
can propose individualisation of the current therapeutic guidelines and other treatment methods in accordance to the ineffectiveness or contraindications to standard methods	E.U18	Control during classes; discussion Colloquium; test	Lecture Seminar Clinical classes
can assist in the following medical procedures and treatments: 1) transfusion of blood and blood products, 2) lumbar puncture, 3) bone marrow examination: biopsy and aspirate, 4) lumbar puncture with intrathecal administration of cytostatics, 5) self-staining of blood products - slides and assessment under a microscope, 6) administration of cytostatics, 7) assistance in therapeutic aphereses	E.U30	Control during classes, discussion Colloquium, test	Lecture Seminar Clinical classes

Assignment conditions

Passing the lectures: in writing form (single-choice test, closed questions) from the lectures contents. To pass the lectures, the student has to obtain 60% or more points. Assessment percentage thresholds: 0-59% - 2,0; 60-67% - 3,0; 68-75% - 3,5; 76-83% - 4,0; 84-91% - 4,5; 92-100% - 5,0

Passing the clinical classes and seminars: obtaining positive grades for all classes planned for implementation within the program of activities. Assessment criteria include written tests introducing the course / topic (single-choice test, closed questions) - positive assessment are above 60% of the obtained points. In case of absences, the student should fill in the deficiencies within the time limit agreed with the teacher. Assessment percentage thresholds: 0-59% - 2,0; 60-67% - 3,0; 68-75% - 3,5; 76-83% - 4,0; 84-91% - 4,5; 92-100% - 5,0

The final grade is the average of the grades obtained from all forms of education (lectures + seminars + exercises). From all the above mentioned results, the arithmetic mean is determined in accordance with the principle: mean 3.25 is the final grade of 3.5; mean 3.75 is the final score of 4.0; mean of 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0

In each part, the student must obtain at least a satisfactory grade. In the event of failure to obtain credit for lectures, seminars and clinical classes before the first term of the final test, in accordance with the regulations of studies, the student will receive a fail mark on the first date. The student has to agree with the teacher on the form and date of re-approaching the given part of the course (lectures, seminars and / or clinical classes).

Absence from all forms of education is justified by a medical certificate or an important accident (confirmed by a reliable document approved by the teacher). A justified absence is allowed for 20% of the hours provided for in a given form of education. After agreeing with the teacher, it is allowed for the student to do his clinical classes (seminars and exercises) with another group. Completion of the lectures after individual agreement with the Coordinator of the course.
The regulations on the conditions for passing a credit correspond to the conditions for direct credit, with the possibility of introducing changes in the event of the necessity to switch to remote credit during the regulatory period, before the start of the session.
Other not mentioned regulations are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Basic literature

1. Gajewski, P. et al: Interna Szczeklika. Podręcznik chorób wewnętrznych 2020.
Choroby układu krwiotwórczego. red. Andrzej Hellmann, Medycyna Praktyczna, 2017
2. Dmoszyńska, A. et al. Wielka Interna: T. 10 Hematologia. Medical Tribune Polska, 2011
3. Jędrzejczak, W. W, Robak, T., Podolak-Dawidziak, M. Praktyka Hematologiczna. Praca zbiorowa. Termedia Wydawnictwa Medyczne, 2015. Wyd. 1

Supplementary literaturę

1. Herold G (red.) Medycyna wewnętrzna. Wyd. Lekarskie PZWL Warszawa 2007
Czasopisma dostępne w Bibliotece Uniwersyteckiej UZ, cyfrowe bazy danych – nauki medyczne i nauki o zdrowiu; http://www.bu.uz.zgora.pl/

Interventional Cardiology and Cardiac Surgery

Course name	Interventional Cardiology and Cardiac Surgery
Course ID	12.0-WL-LekAM-KIKa
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	2
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Jarosław Hiczkiewicz, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	20	Credit with grade
Seminar	10	Credit with grade
Lecture	10	Credit with grade

Aim of the course

Students should gain knowledge of the physical examination of the cardiovascular system. Students will gain information about causes, symptoms, diagnostics and therapeutic management of cardiovascular diseases. Students should be able to plan and interpret additional examinations, plan possible consultations, and establish a diagnosis. During the course the students will be familiarized with the latest scientific achievements in cardiology and cardiac surgery. Students will gain basic skills necessery to conduct clinical trials and to integrate clinical knowledge and skills with the scientific evidence.

Prerequisites: Knowledge in the field of anatomy, physiology, patophysiology, pharmacotherapy, propedeutics of surgery, propedeutics of pediatrics, propedeutics of internal medicine, pathomorphology, radiology.

Scope:

Lectures: Optimal medical therapy, invasive treatment and cardiac surgery of ischemic heart disease – chronic coronary syndromes. Acute coronary syndromes – role of an interventional cardiologist and cardiac surgeon. Aortic diseases. Who is a candidate for surgery and who is a candidate to implant a stentgraft. Acute and chronic heart failure. Medical therapy and invasive treatment. Cardiomiopathies – options for percutaneous and surgical treatment. Infective endocarditis. When is the right time for surgery ? Aquired heart valve diseases. Cardiac arrhythmias – percutaneous ablation and cardiac surgery. Conduction disorders – indications for pacemaker implantation. Pulmonary hypertension and venous thromboembolism. Indications for percutaneous and surgical treatment ?

Clinical classes:

Classes 1 Ischemic Heart Disease. Ischemic Heart Disease – chronic coronary syndromes. Indications for percutaneous and surgical revascularization. Acute coronary syndromes. Percutaneous and surgical treatment. Interpretation of electrocardiograms – ischemic heart disease.

Classes 2 Heart failure – invasive treatment. Aquired heart valve diseases. Surgical and percutaneous treatment methods. Chronic and acute heart failure treatment at the Cardiology Unit and Department of Cardiac Surgery.
Classes 3 Arrhythmias. Electrophysiological examination, who is the best candidate for ablation? Conduction disturbances – indications for cardiac pacing. Interpretation of electrocardiograms, Test.

Teaching methods
Clinical classes in groups of 5 students are conducted in the cardiology unit and outpatient clinic. In practical teaching, emphasis is placed on acquiring the skills of diagnostics and primary and secondary prevention of cardiovascular diseases. Student improves the skills of clinical examination, establishing the initial diagnosis and physical examination, laboratory tests interpretation, differential diagnosis, final diagnosis, and a proposal for treatment in hospitalized patients according to the topic of seminars. Clinical case presentation by a student in front of a group and an academic teacher. Medical history description under the supervision of an academic teacher. Ability to independently perform and interpret the ECG test.
Seminars – discussing clinical cases.
Lectures are conducted in the form of multimedia presentations.

Outcome description	**Outcome symbols**	**Methods of verification**	**The class form**
Students knows and understands the principles of qualifying and performing basic surgical procedures and invasive diagnostic and therapeutic procedures	F.W03	Activity during classes, discussion, evaluation test	Lecture, Seminar, Clinical Classes
Student is able to use basic surgical tools	F.U02	Activity during classes, discussion, evaluation test	Clinical Classes
Student knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most common diseases requiring cardiac surgery, in particular diseases of the heart and great vessels	F.W01	Activity during classes, discussion	Lecture, Seminar, Clinical Classes
Student is able to treat a simple wound, put on and change a sterile surgical dressing;	F.U04	Activity during classes, discussion, evaluation test	Clinical Classes
Student is able to perform basic life support with the use of automatic external defibrillator and other rescue operations and provide first aid	F.U10	Activity during classes, discussion, evaluation test	Clinical Classes
Student is able to monitor the postoperative period based on the basic life parameters	F.U12	Activity during classes,	Clinical Classes

		discussion, evaluation test	
Student knows and understands the principles of suspecting and recognizing brain death	F.W15	Activity during classes, discussion, evaluation test,	Lecture, Seminar, Clinical Classes
Student is able to insert a peripheral venipuncture	F.U05	Activity during classes, discussion, evaluation test	Clinical Classes
Student is able to assist in a typical surgical procedure, is able to prepare the operating field and local anesthetize the operated area;	F.U01	Activity during classes, discussion, evaluation test	Clinical Classes
Student knows and understands postoperative treatment with analgesic therapy and monitoring postoperative	F.W05	Activity during classes, discussion, evaluation test	Lecture, Seminar, Clinical Classes
Student knows and understands the basic issues of transplantology in cardiac surgery, indications for heart transplantation and related procedures;	F.W14	Activity during classes, discussion, evaluation test	Lecture, Seminar, Clinical Classes
Student is able to follow the rules of asepsis and antisepsis;	F.U03	Discussion, evaluation test	Clinical Classes
Student knows and understands the principles of perioperative safety, patient preparation for surgery, general and local anesthesia and controlled sedation;	F.W04	Activity during classes, discussion, evaluation test	Lecture, Seminar, Clinical Classes
Student knows and understands selected issues in cardiac surgery, diseases and acquired diseases an indication for cardiac surgery;	F.W02	Activity during classes, discussion, evaluation test	Lecture, Seminar, Clinical Classes

Assignment conditions

Students' preparation for clinical classes can be tested by the academic teacher orally or through a written test. Participation is required to get a credit for a given class. One justified absence is allowed, making up for missed classes with another student group. To pass the test student must score more than 60% correct answers. In the case of an unsatisfactory grade for the final test, student should proceed with the credit on the date and in the manner agreed with the teacher responsible for the classes. The final grade is the arithmetic mean of all notes provided for the course. The results of the arithmetic mean are determined in accordance with the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Regulations are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended books

Required reading

1.Andrzej Szczeklik Internal medicine. Medycyna Praktyczna

Further reading

2. E. Braunwald, O. Bonow, D.P. Zipes, P. Libby. Heart Disease Braunwald tom 1-4. Elsevier 2021

3. European Society of Cardiology Guidelines published by Polish Cardiac Society http://www.ptkardio.pl/Wytyczne-278

4. Robert M. Bojar Manual of Perioperative Care in Adult Cardiac Surgery. Wiley & Sons 2021

5. Journals available in the Library of University, digital database – medical sciences and health sciences; http://www.bu.uz.zgora.pl/

Mechanisms of antibiotics action and bacterial drug resistance strategies- elective course

Course name	Mechanisms of antibiotics action and bacterial drug resistance strategies- Elective course
Course ID	12.9-WL-LekAM-AiBMDSO
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	1
Course type	Elective
Teaching language	English/Polish
Author of syllabus	Assoc. Prof. Katarzyna Baldy-Chudzik, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	15	Credit

Aim of the course:

The course aims to learn about how antibiotics work on bacterial cells and to present the complex mechanisms responsible for resistance to these substances and the genes that determine the emergence of resistance. Acquainting with the problem of growing antibiotic resistance of pathogenic and commensal bacteria and the consequences for human health.

PREREQUISITES : Completed Microbiology course

Scope: Overview of the most common drug resistance mechanisms by the antibiotic target.

1. Antibacterial substances causing the loss of cell wall integrity: β-lactams, glycopeptides, and phosphonic acid derivatives and resistance mechanisms.
2. Antibacterial substances influencing bacterial cell membranes: polymyxins and lipopeptides and resistance mechanisms.
3. Antibacterial substances inhibiting the synthesis of nucleic acids: quinolones, ansamycins, and resistance mechanisms.
4. Antibacterial substances inhibiting protein synthesis: macrolides, ketolides, aminoglycosides, glycylcyclines, oxazolidinones, and resistance mechanisms.
5. Multi-drug resistance - how to approach it
6. Alert pathogens - management

Teaching methods:

Providing content with the use of multimedia presentations, discussion - classes adapted to the form of direct implementation and using e-learning platforms.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student knows and understands the basics of microbiological diagnostics	C.W19	discussion, evaluation test	Class

knows and understands the problem of drug resistance, including multi-drug resistance	C.W40	discussion, evaluation test	Class
knows microorganisms, taking into account pathogenic and present in the physiological microbiota	C.W12	discussion, evaluation test	Class
knows and understands the influence of biotic (viruses, bacteria) environmental factors on the human body and the human population and the ways of their penetration into the human body	C.W14	discussion, evaluation test	Class
is able to interpret the results of microbiological tests	C.U10	discussion, evaluation test	Class
uses databases, including internet ones, and searches for the necessary information using the available tools	B.U10	discussion, evaluation test	Class
can design a scheme of rational chemotherapy of infections, empirical and targeted.	C.U15	discussion, evaluation test	Class

Assignment conditions:

The condition for passing the course is obtaining a positive grade from the test summarizing the discussed issues. The test includes 10 open and/or closed questions, 60% of correct answers are required to pass the course successfully. One excused absence is allowed, which must be made up in writing or orally, within the time limit agreed with the teacher.

RECOMMENDED BOOKS:

1. Gualerzi C.O., Brandi L., Fabbretti A., Pon C.L. Antibiotics: Targets, Mechanisms and Resistance, ISBN: 978-3-527-33305-9, December 2013

Medical Doctor in Pre-Litigation Procedures and in Legal Cases - elective course

Course name	Medical Doctor in Pre-Litigation Procedures and in Legal Cases - elective course
Course ID	10.9-WL-LEK-PWLPPS
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	2
Course type	Elective
Teaching language	English/Polish
Author of syllabus	Joanna Zdanowska, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	30	Credit

Aim of the course:

1. Acquainting the student with the principles of administering justice in the Republic of Poland.
2. To indicate the student with the types of doctors legal liability.
3. To indicate the student the rules of professional liability by a doctor. Principles of operation and powers of the medical court.
4. To indicate the student with the principles of establishing the facts, analyzing medical data and formulating conclusions of forensic-medical opinions.
5. Practical application of acquired skills and creation of answers to questions from procedural authorities.

Prerequisites: -

Scope:

Judicial power and the judiciary in the Republic of Poland; Types of court proceedings and their rules. Burden of proof; Participants in court proceedings. The doctor as the accused. The doctor as the defendant. The doctor as a plaintiff. The doctor as an expert. A doctor's corporate responsibility. Certifying doctors. Definition and types of medical error

Teaching methods: Discussion, multimedia presentation, review of judicial decisions, case study, answers.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows the rules of medical confidentiality, keeping medical records, criminal, civil and professional liability of a doctor	G.W11	Activity during the classes, discussion	Class
Student can operate in a way that avoids medical errors	G.U08	Activity during classes, discussion	Class

Student knows and understands the concept of a medical error, the most common causes of medical errors and the rules of giving opinions in such cases	G.W17	Activity during classes, discussion	Class
Student is able to draw up medical certificates for the needs of patients, their families and other entities	G.U06	Activity during classes, discussion	Class
Student knows the basic legal regulations concerning the organization and financing of the health care system, universal health insurance and the principles of organization of medical entities	G.W06	Activity during classes, discussion	Class

Conditions for passing the course:

The condition for completing the course is the presence during all classes and the active participation of the student in the classes. If the student is absent during the course, it will be necessary to prepare a paper on the topic indicated by the lecturer. Credit is issued to the student on the basis of attendance, participation in classes and the work prepared as part of classes, speeches, participation in discussions.

The regulations on the conditions for passing a credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the necessity to switch to remote credit during the regulatory period, before the start of the session.

The remaining, not mentioned regulations, are specified in the Study Regulations at the University of Zielona Góra.

Recommended books:

1. Nesterowicz M., Prawo medyczne. Komentarze i glosy do orzeczeń sądowych, Warszawa 2017
2. Jacek A., Sarnacka E.,Prawo medyczne i orzecznictwo lekarskie. Repetytorium, Warszawa 2015
3. Ustawa z dnia 5 grudnia 1996 r. o zawodzie lekarza i lekarza dentysty, Dz.U. z 1997, nr 28 poz. 152 ze zm.

Further reading

1. Kubiak R. i in., Meritum. Prawo medyczne, Warszawa 2016

Medical English 1

Course name	Medical English
Course ID	09.1-WL-LEK-JAME
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	3
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr Joanna Kapica Curzytek

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Laboratory	45	Credit with grade

Aim of the course

Getting acquainted with the basic vocabulary in English used in the work of a doctor. Mastering expressions and phrases used in particular clinical situations in outpatient and hospital treatment (communication with the patient, his family and other doctors).

Prerequisites: Knowledge of the English language at the secondary school level.

Scope

Blood and its diseases; The cardiovascular system and its diseases. Measuring pulse and blood pressure. Elements of cardiology. digestive system. Digestive process and digestive diseases. Genitourinary system. Urinary system diseases

Teaching methods: Discussion, Working with a book (text), Problem method, Case method

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student is able to communicate with the patient in English at the B2/B2+ level according to Common European Framework of Reference for Languages.	D.U18	a discussion; an observation and evaluation of the student's practical skills ; an ongoing monitoring during classes	Laboratory
The student is able to critically analyze medical literature in English and formulate conclusions	D.U17	a preparation of a research paper; a written statement; an evaluation test; an oral response	Laboratory

Assignment conditions

The implementation of each thematic unit ends with a written test. The colloquium can take place in stationary or remote form. The condition for passing the colloquium is to obtain at least 60% of points. The condition for passing the semester is passing all thematic units with a positive grade.

The final grade in the subject is given on the basis of the arithmetic average calculated from the grades from all tests. The result of the arithmetic mean is determined according to the following rule: average of 3.25 is the final grade of 3.5, average of 4.25 is the final grade of 4.0, average of 4.25 is the final grade of 4.5, average of 4.75 is the final grade of 5 .0. Two excused absences from classes in a semester are allowed. The student is obliged to make up the gaps in the form and time agreed with the teacher. In the event of a greater number of excused absences, the conditions for passing the course are agreed individually with the teacher.

Recommended reading

1. Donesch-Jeżo E., English for Medical Students and Doctors, p. 1, Wyd. Przegląd Lekarski Kraków 2000.
2. Glendinning E. H., Howard R., Professional English in Use. Medicine, Cambridge 2017.
3. Lipińska A, et al., English for Medical Sciences, MedPharm Polska, 2016.

Further reading

1. Ciecierska J., Jenike B., English for Medicine, PZWL, Warszawa 2016.
2. Donesch-Jeżo E., English for Medical Students and Doctors, cz. 2, Wyd. Przegląd Lekarski Kraków 2000.

Medical English 2

Course name	Medical English
Course ID	09.1-WL-LEK-JAME
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	4
ECTS credits to win	3
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr Joanna Kapica Curzytek

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Laboratory	45	Credit with grade

Aim of the course

Getting acquainted with the basic vocabulary in English used in the work of a doctor. Mastering expressions and phrases used in particular clinical situations in outpatient and hospital treatment (communication with the patient, his family and other doctors).

Prerequisites: Knowledge of the English language at the secondary school level.

Scope

The nervous system. Sense organs. Interviewing the patient. Physical examination, specialist examination. Vocabulary and concepts in particular medical specialties. Basic equipment of a doctor's office. Organization of the hospital. Basic medical procedures. Pharmacotherapy

Teaching methods: Discussion, Working with a book (text), Problem method, Case method

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student is able to communicate with the patient in English at the B2/B2+ level according to Common European Framework of Reference for Languages.	D.U18	a discussion; an observation and evaluation of the student's practical skills ; an ongoing monitoring during classes	Laboratory
The student is able to critically analyze medical literature in English and formulate conclusions	D.U17	a preparation of a research paper; a written statement; an evaluation test; an oral response	Laboratory

Assignment conditions

The implementation of each thematic unit ends with a written test. The colloquium can take place in stationary or remote form. The condition for passing the colloquium is to obtain at least 60% of points. The condition for passing the semester is passing all thematic units with a positive grade. The final grade in the subject is given on the basis of the arithmetic average calculated from the grades from all tests. The result of the arithmetic mean is determined according to the following

rule: average of 3.25 is the final grade of 3.5, average of 4.25 is the final grade of 4.0, average of 4.25 is the final grade of 4.5, average of 4.75 is the final grade of 5 .0. Two excused absences from classes in a semester are allowed. The student is obliged to make up the gaps in the form and time agreed with the teacher. In the event of a greater number of excused absences, the conditions for passing the course are agreed individually with the teacher.

Recommended reading

1. Donesch-Jeżo E., English for Medical Students and Doctors, p. 1, Wyd. Przegląd Lekarski Kraków 2000.
2. Glendinning E. H., Howard R., Professional English in Use. Medicine, Cambridge 2017.
3. Lipińska A, et al., English for Medical Sciences, MedPharm Polska, 2016.

Further reading

1. Ciecierska J., Jenike B., English for Medicine, PZWL, Warszawa 2016.
2. Donesch-Jeżo E., English for Medical Students and Doctors, cz. 2, Wyd. Przegląd Lekarski Kraków 2000.

Medical ethics with elements of professionalism

Course name	Medical Ethics with Elements of Professionalism
Course ID	08.9-WL-LEK-ELEP
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	2
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr Arkadiusz Nowak dr Tomasz Turowski

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade
Seminar	15	Credit with grade

Aim of the course:
During the classes, the students acquire fundamental knowledge in the field of general ethics, philosophical and ethical foundations of the profession of doctor and moral requirements set for medical practitioners. To the greater extent, they learn the specificities of professional ethics of a doctor. They also acquire competence with respect to the use of medical ethics terminology and are able to independently assess and propose solutions to moral dilemmas emerging in performing their professional duties.

Prerequisites: -

Scope:
Introduction to ethics. General terms (definitions, divisions, normative ethics positions). Ethics vs. morality. Morality of private life vs. public morality. Ethical values (with particular consideration given to the values applicable to health protection). Professional ethics and its functions. Outline of the history of medical ethics. Appropriate and inappropriate goals of medicine. Patients' welfare as a superior value in medicine. Ethical codes in medicine. Profession of doctor under the Polish code of medical ethics. Professionalism in medicine. Doctor-patient relationship models. Dilemmas in medicine – theoretical fundamentals, practical aspects. Conscientious objection institution. Medical confidentiality and its exclusions. Bioethics as a sub-discipline of ethics. Medicine at the beginning and end of life. Ethical dilemmas. Life – death – health – health care – perspective of various cultural circles.
Dealing with patients of various religions and cultures - practical conditions. Medical ethics in the times of the pandemic. Ethical aspects of clinical trials - the role and tasks of the ethics committees. Ethical problems in selected medical specializations (gynecology, paediatrics, oncology, neurology, psychiatry, infectious diseases, palliative medicine). Harmful medicine – examples of adverse reactions. Dealing with nakedness a specific obligation of a doctor's work.

Training methods: Information lecture using multimedia presentations and problem issues. Didactic discussion, case method, small group exercises

Learning outcomes and methods of theirs verification

Description of the outcome	Symbols of outcomes	Verification methods	Forms of classes
is familiar with the principles of the code of medical ethics and can observe ethical patterns in professional activities	D.U13	discussion observation and assessment of being active during classes final test	Lectures Seminar
the student knows the importance of verbal and non-verbal communication in the process of communicating with the patient and the concept of confidence in interaction with the patient	D.W06	discussion observation and assessment of being active during classes final test	Lectures Seminar
can build a climate of confidence throughout the diagnostic and treatment process	D.U04	discussion observation and assessment of being active during classes final test	Lectures Seminar
during the therapeutic process, is able to take into account the patient's subjective needs and expectations resulting from socio-cultural circumstances	D.U01	discussion observation and assessment of being active during classes final test	Lectures Seminar
can recognize the ethical aspect of medical decisions and distinguish between factual and normative aspects	D.U14	discussion observation and assessment of being active during classes final test	Lectures Seminar
knows the main concepts, theories, ethical principles serving as a general framework for proper interpretation and analysis of moral and medical issues	D.W16	discussion observation and assessment of being active during classes final test	Lectures Seminar

Assignment conditions:
The condition for taking a course credit test as part of the exercises is active participation in the classes and a positive grade obtained for a given issue prepared and presented in the form of a multimedia presentation. The condition for taking a course credit test as part of the lecture is the positive passing of the final test in the written form. The test contains 40 single choice questions. The final grade of the subject is the result of the grade obtained from the exercises and the grade from the final test. 3 hours of justified absence are allowed. The substantive scope of classes related to absence must be complemented as part of direct consultations with the lecturer.
Percentages for grades: 95-100% = 5.0 88-94% = 4.5 75-87% = 4.0 68-74% = 3.5 60-67% = 3.0 0-59% = 2.0.

The regulations regarding the conditions of taking a course credit test are equivalent to those of taking a course credit test directly, subject to the possibility of making changes if it is necessary to switch to taking a course credit test remotely within the statutory time, before the beginning of the examinations. Other regulations not mentioned above are specified in the Study Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Basic bibliography

1. Ben Mephan, Bioethics: An Introduction for the Biosciences, 2nd Edition, wyd. Oxford University Press 2008
2. John Harris, Bioethics (Oxford Readings In Philosophy), wyd. Oxford University Press 2001
3. Paweł Łuków, Tomasz Pasierski, Etyka medyczna z elementami filozofii, PZWL, Warsaw 2013
4. Katarzyna B. Głodowska, Ewa Baum, Rafał Staszewski, Ewa Murawska, Kulturowe Uwarunkowania Opieki nad Pacjentem, Wydawnictwo Naukowe UM im. Karola Marcinkowskiego, Poznań 2019
5. Barbara Chyrowicz, Bioetyka. Anatomia Sporu, Znak, Kraków 2015

Supplementary bibliography

1. Tom L. Beauchamp i James F. Childress, Zasady etyki medycznej, Książka i Wiedza, Warsaw 1996
2. Ben Goldacre, Szkodliwa Medycyna, Zysk i S-ka Poznań 2019
3. Kodeks Etyki Lekarskiej, Naczelna Izba Lekarska, Warsaw 2004

Medicines of natural origin- elective course

Course name	Medicines of natural origin
Course ID	12.5-WL-LEK-PWLPN
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	7
ECTS credits to win	2
Course type	Elective
Teaching language	English/Polish
Author of syllabus	dr n. med. Sylwia Michalak

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	30	Credit

Aim of the course

To get acquainted with drugs of natural origin, their therapeutic application, taking into account the basics of pharmacognosy, safety of therapy, including side effects and interactions

Prerequisites: Knowledge of biology, biochemistry, immunology, pharmacology, basics of toxicology

Scope:

1. Legal aspects of using natural medicines. Evidence-based medicine, personalized medicine. Traditional and modern herbal medicine.
2. Herbs, spice plants, wild edible and poisonous plants. Definition of herbal medicine.
3. The use of herbal medicines in selected diseases: phytotherapy of anxiety and sleep disorders, phytotherapy of gastrointestinal tract disorders, phytotherapy of respiratory system disorders, phytotherapy of urinary system disorders. Estrogen-like effect of selected medicinal plant raw materials.
4. Selected medical plants of non-European origin.
5. Prevention of selected diseases with drugs of natural origin. Plant immunostimulants.
6. The use of drugs of natural origin in cosmetology.
7. The use of plant raw materials in homotoxicology and homeopathy.
8. Apitherapy: composition and healing properties of honey, propolis, royal jelly. the use of bee venom in medicine.
9. Phytotherapy of nervous system diseases.
10. Plant raw materials in the prevention and support of cancer treatment.
11. Medical Marijuana

Teaching methods: Introduction to exercises with the use of multimedia presentations, discussion, review of available literature of natural medicines. Classes - recognition of medicinal plants.

Learning outcomes and verification methods

Outcome description	Outcome symbols	Verification methods	Form of classes
Student is able to choose drugs in appropriate doses in order to correct the pathological processes in the body and in individual organs	C.U14	- active participation - discussion	Classes
Student is able to use pharmaceutical guidelines and medicinal products databases	C.U17	- evaluation of activity on classes - practical skill student assessment	Classes
Student knows and understands individual groups of medicinal products	C.W35	- active participation - discussion - oral answer	Classes
Student is able to critically analyze the medical literature, including in English, and draw conclusions	D.U17	- active participation	Classes
Student knows the basic principles of pharmacotherapy	C.W38	- active participation - discussion - oral answer	Classes
Student is able to estimate the toxicological danger in specific age groups and in states of liver and kidney failure and to prevent drug poisoning	C.U18	- discussion	Classes

Assignment conditions

Active participation in all activities. The condition for obtaining a credit is to prepare a multimedia presentation on a selected group of natural origin drugs. In case of absence, student should catch up on the date agreed with the teacher. All absences should be excused and should not exceed 10 percent of the hours provided for the classes. If the resulting deficiencies are not supplemented by the Student by the date of the final grade or a multimedia presentation will not be prepared, the student receives a failing grade. If the deficiencies do not remain supplemented by the retake dates, the Student obtains an unsatisfactory grade also during the retake dates. Other conditions, not mentioned in this point, are specified in the Study Regulations at the University of Zielona Góra.

Basic Literature

1. Holistic Healing: Theories, Practices, and Social Change; Peter A. Dunn; Eurospan;ISBN: 9781773381213

2. Weiss's Herbal Medicine: Classic Edition;; R. F. Weiss; Georg Thieme 2001; ISBN: 9783131293817

Supplementary literature

1. Medical Marijuana: A Clinical Handbook; Samoon Ahmad, Kevin P. Hill; Wolters Kluwer Health ISBN: 9781975141899

2. Apitherapy – the medical use of bee products https://apcz.umk.pl/JEHS/article/view/7321

Microbiology

Course name	Microbiology
Course ID	13.4-WL-LEK-M
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	6
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Assoc. Prof. Katarzyna Baldy-Chudzik, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	30	Exam
Laboratory	30	Credit with grade
Seminar	15	Credit with grade

Aim of the course:

The education aims to provide knowledge about the physiological microflora of the organism and types of pathogenic microorganisms, the methodology of microbiological tests, and the interpretation of results. The student acquires the ability to follow the rules of microbiological and serological diagnostics. Become familiar with the rules of collecting, storing, and sending material for microbiological tests. Acquires the basics needed to forecast rational antibiotic therapy. They get acquainted with the mechanisms of microbial resistance to drugs and methods of determining the most important mechanisms of resistance to antimicrobial drugs. They learn about the options for preventing and fighting infections (disinfection, sterilization, asepsis, antibiotic therapy, and preventivevaccinations).

Prerequisites : Knowledge of molecular biology, cytophysiology, and biochemistry.

Scope:

I. Lecture:

1. Morphology, physiology, and methods of bacterial classification.
2. Genome of bacteria. The basis of genetic variation and transfer of genetic material.
3. Pathogenesis of bacterial infections. The relationship between bacterial pathogenic properties and the cell structure and metabolic properties (bacterial toxins, enzymes).
4. Bacterial etiological factors of infections in humans: (gram-positive and gram-negative cocci, gram-negative rods, gram-positive bacilli sporulating and non-sporulating, anaerobic bacteria, mycobacteria, spirochetes, actinomycetes, mycoplasmas, chlamydia, rickettsiae).
5. Epidemiology and prophylaxis of bacterial infections. Antibacterial vaccines.
6. Antibiotics and chemotherapeutic agents: groups, mechanisms of action, antibacterial spectrum
7. Mechanisms of bacterial resistance to antibiotics.
8. Features of virus structure and replication. Classification criteria of viruses pathogenic for humans. Biological and pathogenic properties of DNA and RNA viruses. Pathomechanism of viral infections.
9. Viral etiological factors of human infections - DNA viruses.
10. RNA viruses

11. Epidemiology and prevention of viral infections. Antiviral vaccines.
12. Morphology and physiology of fungi. Criteria for the classification of pathogenic fungi for humans.
13. Pathogenesis of fungal infections and etiological factors of mycoses: yeast-like fungi, filamentous fungi (molds), dermatophytes, dimorphic fungi.
14. Epidemiology and prophylaxis of mycoses.
15. Fungi as allergens. Mycotoxins and mycotoxicoses.

II. Seminar:

1. Physiological flora of the human body. Endogenous infections.
2. Infections of the skin and soft tissues.
3. Infections of the respiratory system. Review of the most important pathogens in selected disease entities: sinusitis, angina, laryngitis, pneumonia. Principles of collecting biological material for microbiological tests, basics of microbiological diagnostics, and recommended treatment.
4. Infections of the genitourinary system. Review of the most important urogenital pathogens in selected disease entities: urinary tract inflammation (UTI), sexually transmitted diseases (STD). Principles of collecting biological material for microbiological tests, the basics of diagnostics, and recommended treatment.
5. Infections of the digestive system. Review of the most important pathogens in selected disease entities: food poisoning, infectious diarrhea, bacterial dysentery, abdominal distension, cholera, mucositis, and gastric ulcer. Principles of collecting biological material for microbiological research, basics of microbiological diagnostics, recommended treatment.
6. Infections of the nervous system and blood. Overview of the most important pathogens in selected CNS disease entities: meningitis and encephalitis. Overview of the most important pathogens leading to sepsis. Principles of collecting biological material for microbiological tests, basics microbiological diagnostics, and recommended treatment.

III. Laboratory classes

1. Organizational matters; Health and Safety. Bacterial cell morphology and staining methods. Bacterial colony morphology.
2. Sterilization, disinfection, and asepsis: principles and methods of disinfection and sterilization, methods of sterilization process control, principles of proper antiseptics.
3. Basics of bacteriological diagnostics. Methods of breeding bacteria on artificial growth media. Isolation and selected methods of bacteria identification.
4. Gram-positive cocci (Staphylococcus, Streptococcus) and Gram-positive bacilli.
5. Mycobacterium and actinomycetes; Corynebacterium and other gram-positive bacilli.
6. Fermenting and non-fermenting gram-negative rods. Anaerobic gram-negative bacteria.
7. Gram-negative cocci and Gram-negative small rods.
8. Atypical bacteria (Mycoplasma, Ureaplasma, Chlamydia, Chlamydophila). Spiral bacteria (Treponema, Borrelia, Leptospira, Helicobacter).
9. Antibiotics: Mechanisms of action, antibacterial spectrum. Mechanisms of resistance.
10. Yeast-like and mold fungi.
11. Viral infections. Principles of laboratory diagnosis of viral diseases. Serological and molecular diagnostics. The use of bacteriophages in antimicrobial therapy.

TEACHING METHODS:

Laboratory classes in groups of 8-10 people in a research microbiology laboratory. Students individually make preparations and recognize pathogens under the microscope, assess antibiotic sensitivity, and propose a therapy. Seminar for the dean's group (15-20 students) in the form of a

multimedia presentation and discussion. Lectures for the entire year in the form of a multimedia presentation.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
the student can use the optical microscope, including the use of immersion option in observation	A.U01	activity during the classes; an observation and evaluation of the student's practical skills	Laboratory
knows and understands the principles of scientific, observational, and experimental research as well as in vitro research for the development of medicine	B.W29	an exam - oral, descriptive, test and other; an oral response	Lecture Laboratory Seminar
knows and understands microorganisms, including pathogenic and present in the physiological flora	C.W12	an evaluation test an exam - oral, descriptive, test and other an oral response	Lecture Laboratory Seminar
knows and understands the impact of abiotic and biotic (viruses, bacteria) environmental factors on the human body and the human population and the ways of their penetration into the human body, as well as the consequences of exposure of the human body to various chemical and biological factors and the principles of prevention	C.W14 C.W15	an evaluation test an exam - oral, descriptive, test and other an oral response	Lecture Laboratory Seminar
knows and understands the symptoms of iatrogenic infections, the ways of their spread and pathogens causing changes in individual organs	C.W18	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
knows and understands the basics of microbiological diagnostics	C.W19	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
knows and understands the basics of disinfection, sterilization and aseptic procedures	C.W20	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
knows and understands the clinical forms of the most common infectious diseases of respective systems	C.W34	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar

knows and understands the various groups of therapeutic agents: antibiotics and chemotherapeutic agents	C.W35	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
knows and understands the problem of drug resistance, including multi-drug resistance	C.W40	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
knows and understands the genetic mechanisms of acquiring drug resistance by microorganisms	C.W11	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
knows and understands the epidemiology of infections with viruses, bacteria and infections with fungi and parasites, taking into account the geographical range of their occurrence	C.W13	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
knows and understands the forms or developmental stages of selected parasitic fungi invasive to humans, taking into account the geographical range of their occurrence	C.W16	an evaluation test an exam - oral, descriptive, test and other an oral response	Lecture Laboratory Seminar
can prepare preparation and recognize pathogens under the microscope	C.U09	Activity during classes, discussion, evaluation test,	Laboratory
is able to interpret the results of microbiological tests	C.U10	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
can use the antigen-antibody reaction in current modifications and techniques for the diagnosis of infectious diseases	C.U08	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar
can design a scheme of rational chemotherapy of infections, empirical and targeted.	C.U15	Activity during classes, discussion, evaluation test, exam	Lecture Laboratory Seminar

Assignment conditions:

Preparation for laboratory classes and seminars is verified at the beginning of the classes in oral or written form. The condition for passing the laboratories is obtaining positive grades from partial tests. The condition for passing the seminars is to obtain positive marks from the partial tests. During the controlled classes (laboratory classes, seminars), two excused absences are allowed (e.g. sick leave), which are subject to a written test in the scope of the subject of the performed classes, on a date agreed with the teacher. The condition for admission to the exam is the positive completion of laboratory classes and seminars. Final exam in the form of a test, 100 tasks, including closed and open, the condition for passing is obtaining at least 60% of the possible points. The grades for partial tests (laboratory exercises and seminars) and the grade for the exam are

determined in accordance with the principle: 94-100% - very good (5.0); 85-93% - a good plus (4.5); 76-84% - good (4.0); 68-75% - a sufficient plus (3.5); 60-67% - satisfactory (3.0), 0-59% unsatisfactory (2.0). The final grade of the course is the arithmetic mean of all the forms provided for the course (laboratory classes, seminars, and exam). The results of the mean are determined in accordance with the principle: mean 3.25 - final grade 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

RECOMMENDED BOOKS:

1. Medical Microbiology, Jawetz, Melnick, & Adelberg's, The McGraw-Hill Companies, 26 Edition
2. Microbiology a clinical approach, A. Strelkauskas, A. Edwards, B. Fahnert, G. Pryor, J. Trelkauskas, Wyd.: Garlang Science, Second Edition, wyd. 2016 rok

Molecular Biology

Course name	Molecular biology
Course ID	13.4-WL-LEK-BMO
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	1
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. Katarzyna Baldy-Chudzik, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Laboratory	15	Exam
Seminar	15	Credit with grade
Lecture	15	Credit with grade

Aim of the course

The primary objective of teaching medical and molecular biology is the integration of knowledge of basic disciplines, giving rise to the study of clinical genetics. Knowledge of the human genome organization and mechanisms of gene expression regulation, mutagenesis and DNA repair processes enable better understanding of etiology of many diseases. This course allows familiarization with the methods of molecular biology and possibilities of their application in the genetic research.

Prerequisites: Knowledge in the field of organic chemistry, biochemistry and cell biology.

Scope:

Lecture

1. Structure prokaryotes and eukaryotes cells. 2. Structure and function of genetic material (DNA, RNA). 3. Replication, transcription and translation. 4. The regulation of gene expression. 5. Organization of the human genome. 6. Variability of DNA, mutations, DNA repair mechanisms. 7. Molecular basis of neoplastic diseases. 8. Fundamentals of genetic engineering, elements of biotechnology.

Seminars

1. Basics of genomics and cytogenetics. Human genome.
2. Principles of inheritance and the basics of genetic variation. Genetic variability in the population and estimation of the appearance of a given trait in the population.
3. Mutations - types and mutagenic factors, influence of drugs, chemical compounds, physical factors, environmental pollution.
4. Selected human diseases with autosomal and X-linked autosomal inheritance, structural and numerical aberrations.
5. Types of changes detected in DNA / RNA, methods of detection of known mutations.
6. Methods for detecting mutations and polymorphisms in DNA, RNA: reverse transcription, hybridization techniques – Southern and Northern blot, oligonucleotide microarrays, analysis of gene expression using cDNA microarrays, fluorescence in situ hybridization (FISH), SNG, use of multiple fluorescent probes in real-time PCR, MALDI-TOF mass spectrometry
7. Ecogenetics, pharmacogenetics. Laboratories

Laboratory classes

1. Basic principles of work in a molecular biology laboratory, principles of work with laboratory equipment. Basic techniques for the isolation of DNA and RNA nucleic acids and types of electrophoretic separations of nucleic acids.
2. Isolation of lymphocytes from blood. Isolation of genomic DNA by column method. DNA electrophoretic separation and analysis of results. Determination of DNA concentration and purity.
3. Principles and types of PCR reactions. Designing primers for PCR reactions. Electrophoretic analysis of PCR products, analysis of separation results and formulation of conclusions.
4. Study of gene polymorphisms, restriction enzymes used in molecular biology. Genotyping with the use of restriction analysis PCR-RFLP and the Real-Time PCR method. Calculating the number of DNA copies in the qPCR method.
5. Principles of designing and conducting scientific research, interpretation of results, conclusions.

Teaching methods

Lectures in the form of multimedia presentations. Seminars in the form of multimedia presentations and discussions. Laboratory classes include a practical presentation and active participation of the student in the preparation of genetic material. Students get to know the use of specialized equipment for the purposes of molecular genotyping used in medical diagnostics and in scientific research.

Learning outcomes and methods of theirs verification

Outcome description	**Outcome symbols**	**Methods of verification**	**The class form**
Student supports simple measuring instruments and evaluates the accuracy of performed measurements	B.U09	activity during the classes; an ongoing monitoring during classes	Laboratory
Student is able to analyze genetic crosses and pedigrees of human traits and diseases, as well as assess the risk of having a child born with chromosomal aberrations; can use basic laboratory techniques, such as: qualitative analysis, electrophoresis of nucleic acids;	B.U08 C.U01	a discussion an evaluation test an observation and evaluation of activities during the classes	Laboratory Seminar
Student is able to plan and perform a simple research, interpret its results and draw conclusions.	B.U13	a discussion an evaluation test an observation and evaluation of activities during the classes	Laboratory Seminar
Student knows and understands the basic concepts of genetics; describes the phenomena of gene coupling and interaction;	C.W01 C.W02	a discussion an evaluation test an observation and evaluation of activities during the classes	Laboratory Seminar
knows and understands the functions of nucleotides in the cell, the primary and secondary structures of DNA and RNA as well as the structure of chromatin	B.W13	an evaluation test an oral response written exam	Lecture Seminar

knows and understands the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine	B.W29	an evaluation test an oral response written exam	Lecture Seminar
knows and understands the functions of the human genome, transcriptome and proteome as well as the basic methods used in their study, the processes of DNA replication, repair and recombination, transcription and translation, and degradation of DNA, RNA and proteins; knows the concepts of gene expression regulation	B.W14	an evaluation test an oral response written exam	Lecture Seminar
knows the structure of the chromosome and the molecular basis of mutagenesis	C.W04	an evaluation test an oral response written exam	Lecture Seminar
knows the rules of working in a team	D.W18	activity during the classes an observation and evaluation of activities during the classes	Laboratory Seminar
shows responsibility for improving their qualifications and transferring knowledge to others	D.U16	a discussion activity during the classes an observation and evaluation of activities during the classes	Laboratory Seminar

Assignment conditions

Laboratory classes: pass based on attendance and activity in class and one summary test including 25 single-choice test questions and 5 open questions - positive grade for 60% of the points obtained. During the laboratory classes, 1 justified absence is allowed, which must be made up in the form of a written test covering 3 questions on the thematic scope of the laboratory classes, within the time limit agreed with the teacher. Seminar classes: pass based on attendance and participation in classes and partial tests checking knowledge after each seminar - positive grade from 60% of the points obtained. The credit is the arithmetic mean of the partial grades of the above classes. During the seminar classes, 1 excused absence is allowed (sick leave). Absences, in each case, must be made up for in the form of a written test or an oral answer covering the scope of the material for the seminar classes, within the time limit agreed with the teacher.

Final exam from the course: The condition for admission to the examination is positive completion of the controlled classes (seminar and laboratory exercises). The final exam in molecular biology is written (60 test questions) and covers the full range of the subject material (lecture, seminar, laboratory exercises). To obtain a positive result of the exam, the student must obtain a minimum of 36 points (60%). Final grade: arithmetic mean of all forms provided for the course. The results of the mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Recommended reading

1. Terry A. Brown, Genomes, LA, 2010.
2. Primros E. Archtectura of the human genome, NY, 2000.

Neurology

Course name	Neurology
Course ID	12.0-WL-LekAM-Ne
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	9
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Szymon Jurga

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical Classes	30	Credit with grade
Lecture	30	Exam

Aim of the course

The aim of education is to learn about the neurological examination of an adult patient and a child; carrying out a diagnosis and proposing a therapy based on the clinical symptomatology of neurological syndromes; carrying out a diagnosis and proposing therapy in life-threatening conditions. Student is able to correctly classify clinical symptoms and associate them with the location and causes of the disease. Acquainting the student with the latest scientific achievements in neurology. Acquiring by the student the basic skills necessary in conducting clinical trials and integrating clinical knowledge and skills with scientific evidence.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pharmacology, surgery propaedeutics, pediatrics and internal medicine, pathomorphology, radiology.

Scope

Lectures: 1. Vascular diseases of the CNS (3h); 2. Headaches and face pain (1h); 3. Diseases of the extrapyramidal system (1h); 4. Balance disorders, dizziness (1h); 5. Dementia syndromes (1h); 6. Infectious diseases of the CNS (1h); 7. Epilepsy (1h); 8. MS and demyelinating diseases (2h); 9. Diseases of muscles and neuromuscular junction. Motor neuron disease (2h); 10. Diseases of the peripheral nervous system. Symptomatic syndromes associated with nerve entrapment (2h).

Clinical classes: 1. A neurological examination; 2. Fundamentals of clinical diagnosis of nervous system diseases. Symptomatic syndromes in neurology. The upper and lower motor neurons; 3. Neuroradiology; 4. Vascular diseases of the brain; 5. Back pain syndromes; 6. Neuroinfections; 7. Acute neurologic disorders; 8. Rehabilitation in neurological diseases; 10. Test of theoretical and practical knowledge.

Seminars: 1. Vascular diseases of the central nervous system - part. 1; 2. Vascular diseases of the central nervous system - part. 2.; 3. Diseases of the extrapyramidal system; 4. Dementia - primary and secondary dementia syndromes; 5. Demyelinating diseases of the central nervous system; 6. Diseases of the peripheral nervous system - diseases of the cranial nerves, polyneuropathies, radiculopathy, acute and chronic inflammatory demyelinating polyradiculoneuropathy; 7. Muscle diseases; 8. Diseases of the neuromuscular junction. Motor neuron diseases; 9. Headaches and dizziness; 10. Epilepsy.

Teaching methods: Clinical classes in groups of 5-6 students conducted in the neurology and stroke ward as well as in the hospital neurology clinic, including the practical learning of diagnosis and

rules of procedure in stroke. Seminars - case reports, teaching based on the problem. Lectures are conducted in the form of a multimedia presentation.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows and distinguishes the basic complexes of neurological symptoms;	E.W13	a test an evaluation test an observation and evaluation of the student's practical skills an ongoing monitoring during classes an oral response	Lecture Seminar Clinical classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in the most common diseases of the nervous system, including: a) headaches: migraine, tension headache, headache syndromes and trigeminal neuralgia, b) cerebrovascular disease, in particular stroke, c) epilepsy, d) infections of the nervous system, in particular meningitis, Lyme disease, herpetic encephalitis, neurotransmission diseases, e) dementia, in particular Alzheimer's disease, frontotemporal dementia, vascular dementia and other dementia syndromes, f) basal ganglia disease, in particular Parkinson's disease, g) demyelinating diseases, in particular multiple sclerosis, h) diseases of the neuromuscular system, in particular amyotrophic lateral sclerosis and sciatica, i) craniocerebral trauma, in particular concussion;	E.W14	a test an evaluation test an observation and evaluation of the student's practical skills an ongoing monitoring during classes an oral response	Lecture Seminar Clinical classes

Assignment conditions

Preparation for clinical classes verified orally or in writing by the teacher. The student's knowledge and practical skills demonstrated during the classes are checked in the form of ongoing checks during clinical classes.

Final exam consisting of 60 test questions with 5 answers, single choice, lasting 60 minutes. Obtaining 60% correct answers is required to pass the exam. The student is admitted to the exam on the basis of completing the clinical course. 100% attendance is required. Any absence must be justified by an appropriate document confirming the illness (sick leave) or a random accident must be presented to the teacher within 3 working days from the event. Unexcused absences mean the inability to complete the course. A student may make up for a justified absence from 1-2 classes with another group within the time agreed with the person responsible for the subject. In the case of the absence of more than two clinical classes, the student is obliged to complete the entire block with another group.

The final test grade is converted according to the following scale: 94-100% = 5.0; 85-93% = 4.5; 76-84% = 4.0; 68-75% = 3.5; 60-67% = 3.0; 0-59% = 2.0
Resit exam has form of a test. The final grade is the arithmetic mean of all the forms provided for the completion of the course. The results of the arithmetic mean are determined in accordance with the principle: arithmetic mean 3.25 is the final grade of 3.5; mean 3.75 is the final score of 4.0; mean of 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0. The regulations on the conditions for passing the classes are for direct meetings, any changes related to the necessity to switch to remote classes will be perform during the regulatory period, before the start of the session. The remaining, not mentioned regulations, are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

Wojciech Kozubski, Paweł P. Liberski: Neurologia. Tom 1-2, Podręcznik dla studentów medycyny; PZWL, W-wa, 2013.

Further reading

1. Loren A. Rolak: Sekrety neurologii. Wyd. Elsevier Urban & Partner 2008.
2. Garaint Fuller. (red. wyd. pol. Turaj W) Badanie neurologiczne – to proste! Wyd. Elsevier Urban & Partner 2009.
3. Czasopisma dostępne w Bibliotece Uniwersyteckiej UZ, cyfrowe bazy danych – nauki medyczne i nauki o zdrowiu; http://www.bu.uz.zgora.pl/

Nuclear Medicine

Course name	Nuclear Medicine
Course ID	12.1-WL-LekAM-MNu
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	6
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Piotr Zorga MD, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	15	Credit with grade
Seminar	5	Credit with grade

Aim of the course

The goal of this course is to familiarise with basic terminology, rules of execution and interpretation of scintigraphy and positon emision tomography (PET); to give the skill to choose an appropriate examination by considering individual recommendations, restrictions and limitations of radionuclide imaging; to familiarise with newest breakthroughs in the field of nuclear medicine; to allow acquisition of basic skills necessary to carry out clinical tests and to integrate clinical knowledge and skills with scientific evidence.

Prerequisites: Familiarity with anatomy, physiology and pathophysiology; picture diagnosis and medical physics basics.

Scope:

Seminars: 1. Medical imaging, morphological and functional; 2. Positron Emission Tomography PET/CT; 3. Sentinel lymph node in Oncology and methods of detection; 4. Scintigraphic receptor imaging; 5. Radioisotope therapy

Practicals: **Thematic Block 1**

1. Scintigraphy in nephrourology: Nephron imaging – static scintigraphy of kidneys; Isotope renography and diuretic tests; Indirect and direct isotope micturating cystography
2. Diagnosis of pulmonary embolism with the inclusion of lung perfusion scintigraphy
3. Scintigraphy in neurology:

- Application of brain perfusion scintigraphy in vascular and dementia disorders; Radionuclide cisternography and detection of traumatic cerebrospinal fluid leak; Radionuclide imaging of Parkinson's disease and other scintigraphic receptor tests

4. Sceletal metastasis of malignant tumours, diagnosis and isotope therapy

Thematic Block 2

1. Radionuclide imaging and therapy of organs and systems – overview of the method and goal of procedures, interpretation of images, clinical use of following tests:

a. Bone scintigraphy:

- Planar scans (whole body imaging, three-phase bone scintigraphy); Tomographic scans (SPECT and SPECT-CT)

b. Radioisotope heart scans:

- Heart perfusion scintigraphy stress/rest; First-pass method isotope ventriculography

c. Radioisotope digestive tract scans:
- Salivary gland scintigraphy; Liver and biliary tract dynamic scintigraphy; Liver static scintigraphy; Upper digestive tract scintigraphy; Radionuclide diagnosis of gastrointestinal bleeding; Radionuclide imaging of Meckel's diverticulum
d. Thyroid gland isotope imaging:
- Planar scintigram; Iodine uptake; Parathyroid subtractive scintigraphy; Radioisotope therapy: Treatment of benign and malignant tumors in the thyroid gland using I-131; - Radiosynoviortesis

Thematic Block 3

1. Physical basis of nuclear medicine and rules of radiological protection
2. Measuring apparatus:
- Radioactivity meters, dosage and irradiation measurement; Dosimetry; Imaging instrumentarium: planar gamma camera, SPECT-type gamma camera, hybrid SPECT/CT gamma camera, PET/CT scanner
3. Basics of radiological protection:
- Rules of radiological protection (personnel, patient); Exposure categories, classification of laboratory sections; Methods of dosage reduction and ionising radiation protection
4. Principles of radiopharmacy:
- Pharmacokinetics of radiotracers; Construction and operation of a technetium-99m generator; Rules of work in a radionuclide laboratory; Radioactive waste and its degradation

Methods of teaching

Lectures in the form of multimedia presentations and discussions with students take place in the lecture hall. Clinical practicals take place in the nuclear medicine dept.
During the practicals students familiarise themselves with the topography and rules of conduct of the facility; together with staff they will take part in:
- Patient registration
- Testing, qualification and ordering the treatment for patients
- Carrying out diagnosis or treatment procedures
- Preparation and quality inspection of gamma cameras, SPECT/CT and PET/CT scanners
- Marking of radiotracers in a hot laboratory

Students will familiarise themselves with operation of computer workstations and clinical software, under the supervision of staff they independently perform:
- Basic analysis and interpretation of scintigraphic images
- Reconstruction and initial analysis of PET/CT scan images

Due to the nature of work in a radioisotope facility it will not be possible to hold a practical demonstration of certain topics and procedures. A multimedia presentation with particular emphasis on the practical aspects with an interactive discussion will be used instead.

Effects of study and methods of verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student supports simple measuring instruments and evaluates the accuracy of performed measurements. The graduate knows the issues of modern diagnostic and therapeutic procedures in the field of nuclear medicine, in particular: a) instrumental methods and techniques of nuclear medicine with	E.W07 E.W14 E.W26 F.W01 F.W10	-Active participation in classes - Control during classes - Exams – oral, descriptive, test and others - Presence and active participation in	-Seminar -Clinical practicals

the use of radioactive isotopes b) indications, contraindications and preparation of patients for specific types of nuclear medicine diagnostic procedures and contraindications to the use of radiopharmaceuticals c) procedures in the field of isotope therapy and their role in therapeutic management.	F.W13 E.U12 E.U16	practicals with or without presence of a patient. Practical skills will be verified by the person carrying out the practical.	

Assignment conditions

A condition to attend the final exam is presence in all classes. A maximum of two unexcused absences are allowed. Student should consult with the person carrying out the classes and retake the classes no later than the day of the final exam.

The student's knowledge, analytical skills, substantive preparation and active participation in clinical practicals are verified continuously during the classes. In the event that the student is not prepared or a task given to them is insufficiently performed, they might be forbidden from continuing to attend the class and/or be forbidden from taking the final exam. In such an event the student must make up for the missed content in time given by the person carrying out the class. The final exam will verify the material discussed during seminars, practicals and lectures with the knowledge procured from recommended literature and home work. Final exam is in written form, no less than 35 single-choice questions. Achieving a score of at least 60% is equivalent to passing the exam. The final score from the subject is calculated using the exam's score, converted according to the following scale: 93-100% = 5.0; 85-92% = 4.5; 76-84% = 4.0; 68-75% = 3.5; 60-67% = 3.0; 59% and less = 2.0.

Regulations regarding the conditions for passing and the examination are equivalent to those of direct examination, subject to change if forced to move to remote examination in regulated time, before the start of the exam period.

Recommended reading

Birkenfeld B, Listewnik M. Medycyna nuklearna, obrazowanie molekularne. Wyd. Pomorskiego Uniwersytetu Medycznego Szczecin 2011.

Królicki L. Medycyna nuklearna. Wyd. Fundacja im. L. Rydygiera 1996.

Pruszyński B. Radiologia. Wyd. Lekarskie PZWL Warszawa 2003.

Oncological surgery

Course name	Surgical oncology
Course ID	12.0-WL-LekAM-CHOn
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	7
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Dawid Murawa, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	30	Credit with grade
Seminar	10	Credit with grade
Lecture	20	Credit with grade

Aim of the course

The aim of the education is to provide basic information on surgical specialties. Getting to know the examination of the surgical patient, diagnosis of surgical diseases, recognition of the symptoms of "acute abdomen", as well as recognition of congenital and acquired malformations, diagnosis of surgical infections. The student learns the algorithms of emergency procedures, including diagnostics and preparation for surgery. Acquainting the student with the latest scientific achievements in general surgery. Acquiring by the student the basic skills necessary in conducting clinical trials and integrating clinical knowledge and skills with scientific evidence.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pathomorphology

Scope:

1. Symptomatology and principles of qualifying patients for surgical treatment in neoplastic diseases.
2. Neoplasms of the gastrointestinal tract - methods of surgical treatment and adjuvant treatment.
3. Neoplasms of the thyroid gland and hormonally active tumors - methods of surgical treatment and adjuvant treatment.
4. Neoplasm of the mammary gland and other breast cancers - methods of surgical treatment and adjuvant treatment.
5. Lung cancer and other lung neoplasms - methods of surgical treatment and adjuvant treatment.
6. Skin neoplasms - methods of surgical treatment and adjuvant treatment.
7. Pediatric neoplasms and related surgical techniques.
9. Outpatient and diagnostic management in a patient with suspected neoplastic disease.
10. Oncological emergencies.

Teaching methods

Classes in groups of 5 students are in the form of classes in surgical wards and surgical clinics, and take into account the treatment of patients in the emergency room. Lectures in the form of multimedia presentations.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
treats external bleeding	F.U09	a pass - oral, descriptive, test and other	Lecture Clinical classes
adheres to the principles of asepsis and antisepsis	F.U03	a pass - oral, descriptive, test and other	Lecture Clinical classes
examines the mammary gland, lymph nodes, the thyroid gland and the abdominal cavity in terms of an acute abdomen, and also performs rectal examination	F.U06	a pass - oral, descriptive, test and other	Lecture Clinical classes
treats a simple wound, puts on and changes a sterile surgical dressing	F.U04	a pass - oral, descriptive, test and other	Lecture Clinical classes
evaluates the result of a radiological tests in the scope of the most common types of fractures, especially those of long bones	F.U07	a pass - oral, descriptive, test and other	Lecture Clinical classes
performs emergency immobilization of the limb, selects the type of immobilization necessary for use in typical clinical situations and controls the correctness of blood supply to the limb after applying the immobilizing dressing	F.U08	a pass - oral, descriptive, test and other	Lecture Clinical classes
uses basic surgical tools	F.U02	a pass - oral, descriptive, test and other	Lecture Clinical classes
knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most common diseases requiring surgical intervention, taking into account the distinctiveness of childhood, including in particular: a) acute and chronic diseases of the abdominal cavity, b) chest diseases, c) diseases limbs and head, d) bone fractures and organ injuries;	F.W01	a pass - oral, descriptive, test and other	Lecture Clinical classes
knows the principles of perioperative safety, patient preparation for surgery, general and local anesthesia and controlled sedation	F.W04	a pass - oral, descriptive, test and other	Lecture Clinical classes
performs the peripheral puncture procedure	F.U05	a pass - oral, descriptive, test and other	Lecture Clinical classes
knows selected issues in the field of pediatric surgery, including traumatology and otorhinolaryngology, selected defects and acquired diseases which are an indication for surgical treatment in children	F.W02	a pass - oral, descriptive, test and other	Lecture Clinical classes
assists in a typical surgical procedure, prepares the operating field and locally anesthetizes the operated area	F.U01	a pass - oral, descriptive, test and other	Lecture Clinical classes

knows postoperative treatment with analgesic therapy and postoperative monitoring	F.W05	a pass - oral, descriptive, test and other	Lecture Clinical classes
knows the rules of qualification and performance of basic surgical procedures as well as the most common complications of basic surgical procedures and invasive diagnostic and therapeutic procedures	F.W03	a pass - oral, descriptive, test and other	Lecture Clinical classes

Assignment conditions

Preparation for classes is verified verbally or in writing by the teacher. Completion of classes is based on presence and active participation as well as evaluation of practical skills orally by the teacher. One excused absence is allowed, or make up for the missed classes with another student group. Attendance at classes is a condition of admission to pass. Absence requires making up with another student group.

Preparation for classes verified in oral or written form. Final exam in the form of a test - 50 single-choice questions. Passing the test - 94-100% = 5.0; 85-93% = 4.5; 76-84% = 4.0; 68-75% = 3.5; 60-67% = 3.0; 0-59% = 2.0. The exam grade is the final grade. Passing requires obtaining a minimum of 60% correct answers in the final test. You should proceed with the credit on the date and in the manner agreed with the person responsible for the classes.

The regulations on the conditions for passing the classes are for direct meetings, any changes related to the necessity to switch to remote classes will be perform during the regulatory period, before the start of the session. Other conditions, not mentioned in this point, are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Jeziorski A. Chirurgia Onkologiczna. Wyd. Lekarskie PZWL Warszawa 2018
2. Fibak J. Chirurgia. Repetytorium. Wyd. Lekarskie PZWL Warszawa 2004 (wydanie II - dodruk 2008).
3. Popiela T. Chirurgia dla studentów medycyny. Wyd. Elsevier Urban & Partner Wrocław 2009.
4. Schmidt J. Podstawy chirurgii ogólnej. Wyd. Lekarskie PZWL Warszawa 2009.

Further reading

1. Noszczyk W. Chirurgia. tom I, tom II. Wyd. Lekarskie PZWL Warszawa 2005.
2. Góral R. Zarys chirurgii dla studentów medycyny. Wys. Lekarskie PZWL Warszawa 1994.

Oncology

Course name	Oncology
Course ID	12.0-WL-LekAM-ON
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	9
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Marek Szwiec

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	30	Credit with grade
Lecture	30	Credit with grade

Aim of the course

The aim of education is to acquire skills allowing for early diagnosis of cancer, making decisions about diagnostic tests allowing for the assessment of cancer's stage; the use of basic methods of oncological treatment, the use of combined treatment methods, carrying out simple diagnostic and nursing procedures. Acquainting the student with the latest scientific achievements in oncology.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pharmacology, surgery propaedeutics, pediatrics and internal medicine, pathomorphology, radiology.

Scope: Lectures:

1. Epidemiology, etiopathogenesis and cancer prevention, screening. Tumor markers.
2. Principles of chemotherapy. Surgical oncology. Gynecologic oncology.
3. Prophylaxis and organization of fighting cancer in Poland. Strategy for the diagnosis and cancer treatment.
4. Breast neoplasms, ovary, vulvar cancer, vaginal cancer, cervical cancer, endometrial cancer, prostate cancer.
5. Neoplastic disease of the gastrointestinal tract, lung, thyroid gland, kidneys and bladder.
6. Sarcomas of soft tissues and bones. Neoplasms of the head, neck and mediastinum region.
7. Neoplasms of the respiratory tract.
8. Neoplasms of the skin, testes, nervous system, endocrine glands.
9. Radiotherapy in oncology

Clinical classes:

1. Neoplasms of the breast, vulvar cancer, vaginal cancer, cervical cancer, endometrial cancer, prostate cancer, sarcomas of soft tissues and bones, neoplasms of the head, neck and mediastinum region.
2. Neoplasms of the gastrointestinal tract, lung, thyroid gland, kidneys and bladder.
3. National Program for Combating Cancer Diseases.
4. Neoplasms of the respiratory tract.
5. Neoplasms of the skin, testes, nervous system, endocrine glands.

Teaching methods: Clinical classes in 5-person groups are held in the oncology ward, in the radiotherapy ward and in oncology clinics. Lectures are held in the form of multimedia presentations. Seminars - presentation form and discussion.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Knows the possibilities of modern cancer therapy (including multimodal therapy), the perspectives of cell and gene therapies and their side effects;	E.W25	activity during the classes; an examination test with score scale; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Proposes individualization of current therapeutic guidelines and other methods of treatment in the face of ineffectiveness or contraindications to standard therapy	E.U18	activity during the classes; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Qualifies the patient for home and hospital treatment;	E.U20	activity during the classes; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Planning specialist consultations;	E.U32	activity during the classes; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
He knows the principles of combination therapies in oncology, diagnostic and therapeutic algorithms in the most common human neoplasms	E.W26	activity during the classes; an examination test with score scale; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Knows the basics of early cancer detection and screening rules in oncology;	E.W24	activity during the classes; an examination test with score scale; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Interprets laboratory tests and identifies the causes of deviations;	E.U24	activity during the classes; an examination test with score scale; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Knows the environmental and epidemiological conditions of the most common human cancers;	E.W23	activity during the classes; an examination test with score scale; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Defines clinical situations, in which time of life, functional status or patients preferences limit management according to recommendations for a given disease	E.U21	activity during the classes; an examination test with score scale; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes
Conducts an analysis of possible side effects of individual drugs and the interactions between drugs;	E.U17	activity during the classes; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes

Plans diagnostic, therapeutic and prophylactic procedures;	E.U16	activity during the classes; an examination test with score scale; an observation and evaluation of activities during the classes	Lecture Seminar Clinical classes

Assignment conditions

Preparation for clinical classes and seminars is verified orally or in written form by the teacher. Final pass in a test form. The student is admitted to the final test on the basis of passing the classes. Obtaining 60 points (60%) out of 100 points possible to get is a condition for passing the test. The test score is calculated according to the scale (% correct answers): 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0

Absences - a limit of two excused absences is allowed. A justification with an appropriate document confirming the disease (sick leave) or a random accident should be presented to the teacher within 3 working days of the event. Exceeding the limit and unexcused absences mean that it is not possible to complete the course. Consultations: information on the dates of consultations will be posted on the website and on the CM UZ educational platform. The final grade is the arithmetic mean of all the forms provided for the completion of the course. The results of the arithmetic mean are determined in accordance with the principle: mean 3.25 is the final grade of 3.5; mean 3.75 is the final score of 4.0; mean of 4.25 is the final score of 4.5; mean 4.75 is the final score of 5.0.

The regulations on the conditions for passing the classes are for direct meetings, any changes related to the necessity to switch to remote classes will be perform during the regulatory period, before the start of the session. Other conditions, not mentioned in this point, are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1.Jassem Jacek, Radzisław Kordek R (red.) Onkologia. Podręcznik dla studentów i lekarzy. Wyd. ViaMedica 2019.

2. Krzakowski Maciej, Dziadziuszko Rafał, Fijut Jacek: Zalecenia postępowania diagnostyczno-terapeutycznego w nowotworach złośliwych 2011, 2012

Further reading

1. Krzakowski Maciej (red.) Onkologia kliniczna. Tom I i II. Wyd. Borgis Warszawa 2006

2. Daniel D. Chamberlain, James B. Yu, Roy H. Decker Kompendium Radioterapii Onkologicznej Electa 2018

3. Czasopisma dostępne w Bibliotece Uniwersyteckiej UZ, cyfrowe bazy danych – nauki medyczne i nauki o zdrowiu; http://www.bu.uz.zgora.pl/

Otolaryngology head and Neck Surgery

Course name	Otolaryngology head and Neck Surgery
Course ID	12.0-WL-LEK-Otl
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	4
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Paweł Golusiński, prof. UZ

The class form	**Hours per semester (full-time)**	**Form of assignment**
Lecture	20	Exam
Clinical classes	30	Credit with grade
Seminar	10	

Aim of the course:
Knowledge of pathological background and symptoms of common disorders of otolaryngology, pediatric otolaryngology and audiology. Ability of performing basic ear, nose and throat (ENT) examination. Knowledge of the diagnostics and treatment algorithms in ENT emergencies. Knowledge of epidemiology, risk factors and molecular background of the development and course of head and neck malignancies. Knowledge of fundamentals of diagnostics and multidisciplinary treatment in head and neck oncology.

Prerequisites: Basic knowledge of anatomy and physiology of head and neck region.

Scope:
1. Taking the history and basic ENT patient evaluation. Basics of otoscopy, rhinoscopy, indirect laryngoscopy and examination of the oral cavity and pharynx.
2. Ear: Basics of anatomy and physiology including balance and hearing. Symptoms, signs and management of most common disorders of external ear (external otitis, trauma of the auricle). Symptoms, signs and management of most common disorders of the middle ear (acute media otitis, suppurative otitis media, chronic otitis media, eustachian tube dysfunction, otosclerosis). Symptoms, signs and managementent of most common disorders of the inner ear (Meniere disease, vestibular neuronitis, vertigo). Principals of the otoneurology. Most common ear surgery procedures (paracentesis, grommet insertion, myringoplasty, mastoidectomy).
3. The nose: Anatomy and physiology of the nose, nasal cavity and paranasal sinuses. Symptoms and signs of the of common sinonasal disorders (nose bleed, acute rhinosinusitis, chronic rhinosinusitis, rhinitis). Management of the fractured nose and epistaxis. The principles of most common nasal operations (septoplasty, functional endoscopic sinus surgery).
4. The oral cavity and the pharynx. Anatomy and physiology of the oral cavity and pharynx. Presentation, symptoms and management of the most common diseases (tonsillitis, inflammatory diseases of the oral cavity, malignant tumors). Principles of the basic operations :tonsillectomy, adenoidectomy.
5. The larynx: Anatomy and physiology of the larynx. Symptoms and signs of the of common laryngeal disorders (acute and chronic laryngitis, vocal cord palsy, benign and malignant lesions).

Laryngopharyngeal reflux. Principles of the basic operations: tracheostomy, laryngeal endoscopy, total and partial laryngectomy.
6. Head and neck- benign and the malignant disease: Basic anatomy and physiology of the oral cavity, salivary glands, pharynx, larynx, oesophagus and lyph node drainage. The presentation of head and neck cancer. The presentation and management of the salivary gland disease. d. Examining of the oral cavity, larynx, pharynx. Examining the neck with the reference to the lymph nodes. Management of the neck lumps. A basic knowledge of the principles of operative surgery. Postoperative management of patient after major head and neck surgery.
7. Principals of audiology: Physiology of hearing process. Conductive and sensineuronal hearing loss. Hearing tests. Tinnitus. Principals of the hearing aid.
8. Principals of pediatric otolaryngology: Examination of pediatric patient. Symptoms and signs of the selected common pediatric disorders.

Teaching methods :
Lectures in the form of multimedial presentations. Clinical classes at the Department of the Otolaryngology and maxillofacial Surgery. Classes require participation of the students in the clinical activities at the ward, clinic and operating room. The clinical classes also contain case discussion, seminars and learning of the practical examination skills.

Learning outcomes and methods of theirs verification

Outcome description	**Outcome symbols**	**Methods of verification**	**The class form**
Acquire sufficient knowledge of ENT conditions including: 1. Symptoms, signs and management of disorders of ear, nose throat oral cavity and larynx. 2. Symptoms, signs and management of disorders of the facial nerve and the neck lumps 3. To learn basic diagnostics and management of trauma of ear, nose larynx and esophagus 4. To be familiar with ENT emergencies in particular with dyspnoe. 5. To understand the management patients with hearing loss and speech disorders 6. To be familiar with diagnostics and treatment of the head and neck malignancies	F.W 12	Oral Answer, Practical test Discussion Written test	Lectures Clinical classes
Is able to perform basic ENT examination	F.U25	Practical test	Clinical Classes
Is able to perform basic hearing tests	F.U26	Practical test	Clinical Classes

Assignment conditions:
Clinical classes: pass based on attendance and participation in classes and oral answer or written test based on the cases students have a chance to see during their time in Department- positive grade from 60% of the points obtained. During the seminar classes, 1 excused absence is allowed (sick leave). Absences, in each case, must be made up for in the form of a written test or an oral answer covering the scope of the material for the seminar classes, within the time limit agreed with

the teacher. Final exam from the course: The condition for admission to the examination is positive completion of the clinical classes. The final exam comprises 60 test multiple choice questions and covers the full range of the subject material (lectures and clinical classes). To obtain a positive result of the exam, the student must obtain a minimum of 36 points (60%). Final grade: Final grade is identical as the grade achieved in final exam.

Recommended reading:

1. Corbridge, Steventon Oxford Handbook of ENT and Head And Neck Surgery, Oxford University Press
2. Flint, Haughey, Lund, Robbins, Thomas: Cummings Otolaryngology Head and Neck Surgery, Elsevier

Paediatrics 1

Course name	Paediatrics
Course ID	12.0-WL-LekAM-P
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Assoc. Prof. Marcin Zaniew MD, PhD

The class form	**Hours per semester (full-time)**	**Form of assignment**
Lecture	30	Credit with grade
Seminar	10	Credit with grade
Clinical classes	30	Credit with grade

Aim of the course:
The aim of education is to acquire knowledge and acquire practical skills in the field of: physical and physical examination of children of different ages; keeping medical records; physiology of the child's physical and psychomotor development and methods of its assessment; the use of percentile grids, norm tables; assessment of critical vital parameters in children; rules and tools for their monitoring; prophylaxis in paediatrics: vaccinations, prevention of deficiency diseases (rickets, iron and folic acid deficiency anemia), prevention of caries and malocclusion, prevention of civilization diseases; nutrition of children of different ages; preventive vaccinations; principles of conducting general medical screening examinations in the paediatric population; the rules of functioning of the GP Clinic for children; knowledge of the principles of basic diagnostic methods in paediatrics; knowledge of the symptomatology of childhood diseases; knowledge of the most common childhood diseases.

Prerequisites: Basic knowledge in anatomy, embryology, physiology, genetics, pathophysiology, pathology.

SCOPE:
Lecture topics: 1. Symptomatology of cardiovascular diseases in children. 2. Basic methods of cardiological diagnostics in children. 3. Symptomatology of urinary tract diseases in children.
4. Urinary incontinence in children. 5. Hypertension in children - methods of measurement, pressure norms, causes and diagnostics. 6. Symptomatology of respiratory diseases in children. 7. Infections of the lower level of the respiratory system - etiology, diagnostics, differentiation. 8. Symptomatology of endocrine disorders in children. 9. Diabetes mellitus in children. 10. The hematopoietic system in children. 11. Symptomatology of hematological disorders. 12. Epidemiology and symptomatology of neoplastic diseases in children. 13. Maturation of the child's immune system. 14. Protective vaccinations. 15. Immunity disorders in children. 16. Symptomatology of gastrointestinal diseases in children. 17. Abdominal pain - causes, diagnosis. 18. Diarrhea in children. 19. Food allergy. 20. Genetic conditioning of congenital skull defects. 21. Introduction to dysmorphology.

Seminar topics: 1. Children's development. Examination of newborns and infants. 2. Nutrition for children. 3. Anemia of infancy. 4. Prevention of vitamin D3 deficiency. 5. Obesity in children. 6. Prevention of caries and malocclusion. 7. Growth disorders. 8. Urinary tract infections in children. 9. Vesicoureteral reflux. 10. Febrile convulsions. 11. Neuroinfections.

Teaching methods:
The pediatric introductory teaching program is carried out as part of lectures, seminars (in the form of multimedia presentations) and practical exercises. Practical, training sessions take place in groups of 5 students in paediatric wards / sub-units of the University Hospital in Zielona Góra and outpatient clinics Family doctor / specialist hospital children's clinics.

Learning outcomes and methods of their verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows the environmental and epidemiological conditions of the most common diseases	E.W1	Tests, discussion	Lectures, seminars
Student knows the rules of feeding healthy and sick children, including natural feeding, knows the rules carrying out preventive vaccinations and keeping the health balance of the child	E.W2	Tests, discussion	seminars
Student knows and understands the causes, symptoms, principles of diagnosis and therapeutic management the most common diseases of children	E.W3	Tests, discussion	Lectures, seminars
Student conducts a physical examination of a child at any age	E.U04	activity during the classes	classes
Student conducts a medical interview with the child and his family	E.U02	activity during the classes	classes
Student recognizes the states of imminent threat to life	E.U14	Tests, discussion, activity during the classes	Lectures, seminars, classes
Student carries out differential diagnosis of the most common diseases of adults and children	E.U12	Tests, discussion, activity during the classes	classes
Student performs basic medical procedures and treatments, including body temperature measurement, heart rate measurement, blood pressure	E.U29	activity during the classes	classes
Student assesses the general condition, state of consciousness and awareness of the patient	E.U07	activity during the classes	classes

Assignment conditions

The following is required to pass: attendance at lectures, seminars and exercises (clinical classes), pass the practical part of the physical examination of the child (in on the last day of classes at the Department of Paediatrics) and passing the final test (test on the subject of lectures and seminars). Any absence should be excused. In the case of (excused) absence from 1-2 classes, the student may do the classes with another group. In case absences for> 2 clinical classes, the student is obliged to make up the whole block with another group. If it is not possible or not to make up for classes with another group, the student is required to pass the material discussed during these classes. Two late arrivals are counted as one absence. The final test includes 40 questions (20 from the topics covered in the lectures and 20 from the topics of the seminars). There is a limit of 60% to pass the test correct answers. The student receives a separate grade for lectures and seminars (for each part there is a threshold of 60%). The final grade is the arithmetic mean grades from all forms of classes. In the event of failure to pass the final test, the student is obliged to retake the test or oral test after agreement with the course coordinator. Failure to pass one of the forms of classes results in failure to complete the entire course (negative final grade). Rating the final subject is the exam grade. 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0

The results of the arithmetic mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Recommended books:

1. Nelson Textbook of Pediatrics, 2-Volume Set, 21st Edition, 2019

Paediatrics 2

Course name	Paediatrics
Course ID	12.0-WL-LekAM-P
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	10
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Assoc. Prof. Marcin Zaniew MD, PhD

The class form	**Hours per semester (full-time)**	**Form of assignment**
Lecture	30	Exam
Seminar	10	Credit with grade
Clinical classes	60	Credit with grade

Aim of the course:
The aim of paediatric education is:
- improving already acquired practical skills in the field of interviewing and physical examination of children from the neonatal period to the age of 18,
- expanding knowledge about childhood diseases and learning about new diseases for this period,
- acquiring the ability to perform differential diagnosis,
- learning about diagnostic methods in paediatrics,
- theoretical and practical knowledge of diagnostic procedures performed in children,
- learning the principles of emergency procedures in paediatrics,
- knowledge of epidemiology, symptomatology, diagnostics, treatment and prognosis in the most common childhood diseases.

Prerequisites: Basic knowledge in anatomy, embryology, physiology, genetics, pathophysiology, pathology, pharmacology.

Scope:
Lecture topics: 1. Cystic fibrosis. 2. Asthma - differences in diagnosis and treatment in children. 3. Emergencies in paediatric pulmonology. 4. Rash diseases in children. 5. Kawasaki disease. 6. Anaemia in children. 7. Diagnostics and therapy of leukemias and lymphomas in children. 8. Diagnostics and therapy of organ tumors in children. 9. Bone marrow transplantation in children. 10. Defects of the urinary system. 11. Genetically determined kidney diseases. 12. Urolithiasis in children. 13. Congenital heart defects. 14. Cardiac arrhythmias in children. 15. Myocarditis in children. 16. Functional disorders of the digestive tract in children. 17. Inflammatory bowel disease in children
Seminar topics: 1. Congenital bleeding disorders. 2. Immune thrombocytopenia in children. 3. Constipation in children. 4. Celiac disease. 5. Infectious diseases of childhood. 6. Diseases of the thyroid gland in children. 7. Congenital adrenal hyperplasia. 8. Hypoglycemia. 9. Cerebral palsy. 10. Epilepsy in children. 11. Early and late consequences of cancer therapy. 12. Proteinuria and hematuria in children. 13. Life threatening conditions in children. 14. Clinical cases.

Teaching methods:
The curriculum is carried out as part of lectures, seminars (in the form of multimedia presentations) and practical exercises. Clinical classes are held in groups of 5 in paediatric wards / sub-units of the

University Hospital in Zielona Góra and the Family Doctor / specialist clinic, hospital children's clinics. Students will have the opportunity to attend acute and scheduled admissions at the Paediatric Admission Room. In addition, the students will be familiar with and will be present at the event procedures / tests performed in children as part of a stay in wards (including ultrasound, echocardiography, X-ray, CT, MRI, biopsy of the kidney, bone marrow, puncture lumbar spine, gastric tube insertion, bladder catheterization, inhalation and oxygen therapy, gastrointestinal function tests, nutrition enteral and parenteral blood pressure measurement 24 hours a day).

LEARNING OUTCOMES AND METHODS OF THEIR VERIFICATION

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows the environmental and epidemiological conditions of the most common diseases	E.W1	Tests, discussion	Lectures, seminars
Student knows and understands the causes, symptoms, principles of diagnosis and therapeutic management the most common diseases of children	E.W3	Tests, discussion	Lectures, seminars
Student conducts a physical examination of a child at any age	E.U04	activity during the classes	classes
Student conducts a medical interview with the child and his family	E.U02	activity during the classes	classes
Student recognizes the states of imminent threat to life	E.U14	discussion, activity during the classes	seminars, classes
Student carries out differential diagnosis of the most common diseases of adults and children	E.U12	Tests, discussion, activity during the classes	Semianrs, classes
Student performs basic medical procedures and treatments, including body temperature measurement, heart rate measurement, blood pressure	E.U29	activity during the classes	classes
Student assesses the general condition, state of consciousness and awareness of the patient	E.U07	activity during the classes	classes
Student carries out differential diagnosis of the most common diseases of adults and children	E.U12	tests, activity during the classes	Seminars, classes
Student assesses the advancement of sexual maturation	E.U10	Discussion, activity during the classes	Seminars, classes
Student plans diagnostic, therapeutic and prophylactic procedures	E.U16	activity during the classes	classes
Student interprets laboratory tests and identifies the causes of deviations	E.U24	tests, discussion, activity during the classes	Seminars, classes

Assignment conditions

The following is required to pass: attendance at lectures, seminars and exercises (clinical classes), pass the practical part of the physical examination of the child (in on the last day of classes at the Department of Paediatrics) and passing the final test (test on the subject of lectures and seminars). Any absence should be excused. In the case of (excused) absence from 1-2 classes, the student may do the classes with another group. In case absences for> 2 clinical classes, the student is obliged to make up the whole block with another group. If it is not possible or not to make up for classes with another group, the student is required to pass the material discussed during these classes. Two late arrivals are counted as one absence. The final test includes 60 questions (30 from the topics covered in the lectures and 30 from the topics of the seminars). There is a limit of 60% to pass the test correct answers. The student receives a separate grade for lectures and seminars (for each part there is a threshold of 60%). The final grade is the arithmetic mean grades from all forms of classes. In the event of failure to pass the final test, the student is obliged to retake the test or oral test after agreement with the course coordinator. Failure to pass one of the forms of classes results in failure to complete the entire course (negative final grade). Rating the final subject is the exam grade. 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0

The results of the arithmetic mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Recommended books:

1. Nelson Textbook of Pediatrics, 2-Volume Set, 21st Edition, 2019

Paediatrics 3

Course name	Paediatrics
Course ID	12.0-WL-LekAM-P
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	11-12
ECTS credits to win	9
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Assoc. Prof. Marcin Zaniew MD, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	70 – 11 term	
Clinical classes	40 - 12 tem	Exam

Aim of the course:

- The student should improve the skills in the field of: medical and physical examination of a sick child and consolidate knowledge in the field of epidemiology of childhood diseases, morphological and physiological differences in terms of systems and organs, nutrition, immunoprophylaxis, child development, causes, symptoms, principles diagnosis and therapeutic management of all childhood diseases.
- The student should be able to: conduct a physical and physical examination of a child, plan and interpret additional examinations, plan consultations specialist, establish the diagnosis and treatment of childhood diseases, perform basic medical procedures and treatments.
- The student should also acquire knowledge of the principles of organizing care for a healthy and sick child, keeping records, principles of cooperation between the GP and the doctor specialist clinic - hospital ward doctor, communication with other persons involved in the care of the child.
- The student should acquire knowledge and skills in the field of social competences, such as: establishing and maintaining deep and respectful contact with patient, showing understanding for worldview and cultural differences, being guided by the good of the patient, observing medical confidentiality and patient's rights, taking actions towards the patient based on ethical principles, with the awareness of social conditions and limitations resulting from the disease as well as the perception and recognizing one's own limitations and making a self-assessment of deficits and educational needs.

Prerequisites: Basic knowledge in anatomy, embryology, physiology, genetics, pathophysiology, pathology and pharmacology.

SCOPE:

1. Childhood diseases - symptoms, deviations, diagnosis, differentiation, treatment.
2. Discussion of the current diagnostic and therapeutic schemes in relation to the above-mentioned diseases.
3. Rare diseases - discussion of selected diseases.
4. Recognition and management of life threatening conditions in children.
5. Procedures and diagnostic tests used in pediatrics.

Teaching methods:
The curriculum is implemented in the form of exercises in the Children's Ward, Neonatal Department of the University Teaching Hospital in Zielona Góra, GP clinics, specialist children's clinics in Zielona Góra and the Multi-profile Medical Simulation Center. During the classes, the above-mentioned topics will be discussed, supplemented with current issues in accordance with the profile of children hospitalized in wards or admitted in clinics on the day of exercise. Students will have the opportunity to attend acute and scheduled admissions at the Paediatric Admission Room. Moreover, students will take part in simulated clinical situations during exercises at the Multi-profile Medical Simulation Center. There is also an option during these classes gaining practical skills in the field of diagnostic and therapeutic procedures (including lumbar puncture, urinary bladder catheterization, gastric tube, intubation, etc.).

Learning outcomes and methods of their verification

Outcome description	**Outcome symbols**	**Methods of verification**	**The class form**
Student knows the environmental and epidemiological conditions of the most common diseases	E.W1	Tests, discussion, activity during the classes	classes
Student knows and understands the causes, symptoms, principles of diagnosis and therapeutic management the most common diseases of children	E.W3	Tests, discussion, activity during the classes	classes
Student plans diagnostic, therapeutic and prophylactic procedures	E.U16	Tests, discussion, activity during the classes	classes
Student recognizes the states of imminent threat to life	E.U14	Tests, discussion, activity during the classes	classes
Student carries out differential diagnosis of the most common diseases of adults and children	E.U12	Tests, discussion, activity during the classes	classes
Student interprets laboratory tests and identifies the causes of deviations	E.U24	Tests, discussion, activity during the classes	classes

Conditions for passing the course:
To pass the course, the following are required: attendance at the classes and passing the final exam. Any absence should be excused. Two excused absences from the exercises are allowed (sick leave or the dean's consent), without having to do homework. In the case of (excused) absence from> 2 classes, the student is obliged to do the classes. If not possible making up for classes with another group, the student is required to pass the material discussed during these classes with the person conducting the classes. Passing the exercises is a prerequisite for taking the final exam. The final

exam includes a practical exam and a test exam out of 100 questions (theoretical questions and questions for the presented case are yes / no or single and multiple choice answers). The practical exam is conducted at the Department of Paediatrics or at the Medical Simulation Center. The practical exam verifies practical skills, skills in communication and the ability to perform basic diagnostic and therapeutic procedures. As part of the exam, each student stays assigned patient. The student reads its documentation, conducts an interview and physical examination in the presence of the examiner-doctor, and then proposes it diagnostic and therapeutic procedure. Knowledge and / or practical skills in the field of diagnostic procedures (including bladder catheterization) are also checked urinary tract, lumbar puncture). In order to pass the test, the limit of 60% correct answers was established. In the event of failure to pass the final test, the student is obliged to retake the test or oral credit after agreement with the course coordinator. Final grade for the exam is the arithmetic mean of both grades (for the practical and theoretical parts). However, in each part, the student must obtain at least a satisfactory grade. Rating the final subject is the exam grade. 94-100% = 5,0; 85-93% = 4,5 ; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0. The results of the arithmetic mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Recommended books:

1. Nelson Textbook of Pediatrics, 2-Volume Set, 21st Edition, 2019

Palliative Medicine

Course name	Palliative Medicine
Course ID	12.0-WL-LekAM-MPa
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	10
ECTS credits to win	3
Course type	Obligatory
Teaching language	English/Polish
Author of syllabus	12.0-WL-LekAM-MPa
	Prof. Wojciech Leppert

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade
Clinical classes	30	Credit with grade

AIM OF THE COURSE:
The goal of the course is to make students familiar with rules of palliative and supportive care, pathophysiology, clinical assessment and treatment of pain, dyspnea and other symptoms in patients diagnosed with cancer and other chronic diseases; submitting basic rules of nursing in patients diagnosed with chronic diseases, including prevention and treatment of pressure sores, skin, oral cavity, colostomy; discussion of psychological, social and spiritual problems of patients diagnosed with advanced diseases and their families; introduction of rules of palliative care provided at home, stationary palliative care units (stationary hospices), and in palliative care out–patient clinics; introduction of basic rules of communication with patients and families; presentation of up – to – date clinical studies in palliative medicine; gaining by students of basic skills necessary for in conducting clinical trials, integration of knowledge and clinical skills with scientific evidence.

PREREQUISITES: knowledge on anatomy, physiology, pathophysiology, pharmacology, propaedeutics of surgery, propaedeutics of paediatrics, propaedeutics of internal diseases, pathomorphology, and radiology.

SCOPE:
Summer semester:
1. Qualifying patients to palliative care. Forms and possibilities of care for patients.
2. Pathophysiology, clinical assessment and treatment of pain, dyspnea and other somatic symptoms.
3. Diagnosis and treatment of emergencies in palliative medicine.
4. Pathophysiology and treatment of the most frequent psychiatric disorders: cognitive impairment, anxiety and depression.
5. Nursing of mouth, skin sores and colostomy.
6. Prophylaxis and treatment of pressure sores.
7. Routes of drug administration – pharmacokinetics, rules of drug preparation and their mixtures, limitations of therapy and drug interactions.
8. Palliative care in non–malignant diseases.

9. Quality of life assessment of patients and families (caregivers), diagnosis of their needs and quality of care assessment.
10. Rules of communication with patients and their families (caregivers).
11. Rules of breaking news regarding disease and prognosis to patients and families.
12. Ethical and law aspects of palliative care: renouncement from causal treatment, futile therapy, sedation, euthanasia and assisted suicide.
13. Rules of cooperation in interdisciplinary therapeutic team.

TEACHING METHODS:
Lectures in the form of multimedia presentations.
Seminars are held in 10–students groups in the form of multimedia presentations and discussions.
Laboratory classes and workshops are held in 5–students groups in palliative care outpatient clinic, outpatient pain clinic, and palliative care unit.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows and understands rules of recognizing and therapeutic management of the most frequent problems of palliative medicine, including: a) treatment of the most frequent somatic symptoms b) prophylaxis and treatment of pressure sores c) treatment of the most frequent emergencies	E.W27	Activity during classes, discussion, oral response	Lectures, seminars, and clinical classes
Student knows rules of the treatment of chronic pain, including pain in cancer patients	E.W29	Activity during classes, discussion, oral response	Lectures, seminars, and clinical classes
Breaking information regarding disease and prognosis to patients and families	D.W11 D.W15	Activity during classes, discussion	Clinical classes
Student knows rules of symptomatic management in patients with advanced phase of cancer and other chronic diseases	E.W28	Activity during classes, discussion, oral response	Lectures, seminars, and clinical classes
Student defines clinical situations, in which time of life, functional status or patients preferences limit management according to recommendations for a given disease	E.U21	Activity during classes, discussion, oral response	Lectures, seminars, and clinical classes
Provision to patients and families of a complex psychological, social, and spiritual support	D.W02 D.W04 D.W05 D.W06 D.W07 D.W10	Activity during classes, discussion, oral response	Lectures, seminars, and clinical classes

CONDITIONS FOR PASSING THE COURSE:

The review test comprises at least 50 questions. To pass the review test student must score at least 60% positive answers. When scores:

- from 0% – 59% gets unsatisfactory (2.0) and fails the review test; from 60% – 67% gets satisfactory (3.0); from 68% – 75% gets satisfactory plus (3.5); from 76% – 84% gets good (4.0); from 85% – 93% gets fairly good (4.5); from 94% – 100% gets very good (5.0)

The final grade is an arithmetic mean of grades of all forms in the subject. The results of the weighted mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Regular class attendance is a student obligation – presence on all classes.

Two excused absences are allowed, however, student is obliged to make up missed classes in the form of preparation of the topics of the classes, in the case of practical classes they should be held with another group or on individual case with an indicated teacher.

RECOMMENDED BOOKS:

1. Oxford Textbook of Palliative Medicine (5 edn) Nathan Cherny (ed.), Marie Fallon (ed.), Stein Kaasa (ed.), Russell K. Portenoy (ed.), David C. Currow (ed.) https://doi.org/10.1093/med/9780199656097.001.0001 Online ISBN: 9780191765896. Print ISBN: 9780199656097

Publisher: Oxford University Press, Oxford 2015. On line to download

2. Palliative Care Formulary. Eighth Edition. Andrew Wilcock (ed), Paul Howard (ed), Sarah Charlesworth (ed.) Pharmaceutical Press 2022

Parasitology

Course name	Parasitology
Course ID	12.9-WL-LEK-P
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	2
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	prof. dr hab. Grzegorz Gabryś

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade
Laboratory	15	Credit with grade

Aim of the course:
Understanding the principles of laboratory diagnosis of infections caused by parasites; presentation of the epidemiology of parasitic diseases, taking into account geographical conditions; getting acquainted with the morphology, ecology and biology of endo- and ectoparasites; acquiring basic knowledge about systematics, life cycles, pathology and control representative species of parasitofauna; acquiring knowledge in the field of adaptation of parasites to various environmental conditions; indication of important diagnostic features necessary for the determination of parasites; overview of the most common domestic and exotic parasitic diseases; presentation of the species of parasites causing diseases, including their biology and invasion; presentation of the effects of the pathogenicity of parasites and the immune response of the host; acquiring knowledge on the determinants of the epidemiology of parasitic diseases, the principles of therapy and parasite control.

Prerequires: Basic knowledge of biology at the high school level

Scope:
LECTURE: history of parasitological research; parasitology as a discipline of science; definition of parasitism; biology and ecology of ecto- and endoparasites; adaptations to a parasitic lifestyle; parasite life cycles and methods of infecting hosts; parasite-host system; the problem of co-evolution of parasites and hosts; parasitoses - diseases caused by parasites - nomenclature and identification; parasitic zoonoses; epizootia; pathogenicity, methods of controlling and preventing parasitoses and zoonoses; global parasitological threats; pathogenic forms and modes of parasite invasion; epidemiology of cosmopolitan and tropical parasitoses; host defense mechanisms; opportunistic parasites; currently used diagnostic methods in parasitology; parasites in the ecosystem; prevention of parasitic diseases.
LABORATORIES: systematic review and identification of parasites: protists, flatworms, nematodes, spiny-headed worms (acanthocephalans), molluscs, leeches, crustaceans, tongue worms (Pentastomida), arachnids, insects; blood and tissue flagellates, sporozoans, amoebas, tissue and body fluids microsporidia and ciliates; malaria; parasitic diseases of the circulatory, digestive, and respiratory systems; parasitic arthropods.

Teaching methods: Lectures with multimedia presentations; practical laboratory training with the use of microscopes, which allows the observation of morphology of parasites and their spores as well as acquiring knowledge on basic diagnostic methods.

Learning outcomes and methods of their verification

Outcome description	Outcome symbols	Methods of verification	The class form
can identify the most common human parasites on the basis of their developmental forms, life cycles and disease symptoms	C.U07	test	Lecture Laboratory
knows and understands the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine;	B.W29	a test	Lecture
knows and understands the functioning of the parasite-host system and the basic symptoms caused by parasites;	C.W17	a quiz an observation and evaluation of the student's practical skills	Lecture Laboratory

Assigment conditions

Preparation for the laboratory is obligatory, with verbal verification during classes. One unexcused absence is allowed in one laboratory block (3 lecture hours = 2.34 clock hours = 20% of laboratory training). The absence must be made up for (with another laboratory group or after individual agreement with the teacher).

The condition for passing the course is obtaining a positive grade from the final test, including the material of the lectures and the laboratory. Assessment is carried out in writing, as a test of choosing one of the four answers, containing 50 questions. Assessment time - 60 minutes. To pass the grade, a correct answer to at least 30 questions (60%) is required. The scale according to which the grade is calculated based on the points obtained:

The final grade is the arithmetic mean of all forms provided for the course (laboratory grade and final test grade). The results of the arithmetic mean are determined in accordance with the principle: mean 3.25 is the final score of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.

Recommended reading:

Medical Parasitology: A Self-Instructional Text. Ruth Leventhal, Russell F. Cheadle. Edd. 7, F. A. Davis Company, 2019. ISBN: 0803675798, 9780803675797

Patient Rights

Course name	Patient Rights
Course ID	14.0-WL-Lek-PPA
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	3
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Dr Arkadiusz Nowak

Forms of classes	**Number of hours per semester (full-time)**	**Form of course credit test**
Seminar	15	Graded course credit test

Aim of the course:
Making the student familiar with the philosophy of patients' rights in the context of human rights and the sources of regulation of patients' rights in Poland. Making the student familiar with the catalog of patients' rights. Presentation of possible forms of exercising individual patients' rights in medical practice. Making the student familiar with the procedure for assertion of claim as a result of a possible infringement of patients' rights. Making the student familiar with the tasks of the Office of the Ombudsman of Patients' Rights. Making the student familiar with the activities of patients' organizations in Poland.

Prerequisites: Knowledge of basic legal concepts in health protection and the foundations of ethics of the profession of doctor.

Scope:
Relationship between the term of human rights and patients' rights. Legal regulations of patients' rights in Poland – history and current state. Right to health care and publicly funded health services. Right to information and to give consent to health services, including exceptions to the principle of obtaining consent. Right to confidential treatment of patient-related information, including circumstances excluding confidential treatment. Right to the opinion of another doctor or to convene a medical case conference. Right to medical record. Right to respect for personal intimacy and dignity. Right to pastoral care and dignified death. Right to treatment without pain. Right to assert claims in view of infringement of patients' rights – mode and institutions. Obliged entities and health professionals, as implementers of patients' rights in professional practice. Role and tasks of the Office of the Ombudsman of Patients' Rights. Tasks and mode of work of the Voivodship Commissions for the Ruling on Medical Incidents. Structure and activity of patient organizations and associations in Poland. Respect for patients' rights during the pandemic.

Training methods: Multimedia presentation, didactic discussion, case method, small group classes.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
can explain to recipients of medical services their basic rights and the legal basis for the provision of those services	G.U05	a discussion, a final test an observation and evaluation of activities during the classes	Seminar
can respect patients' rights	D.U15	a discussion, a final test an observation and evaluation of activities during the classes	Seminar
can build a climate of confidence throughout the diagnostic and treatment process	D.U04	practical test, discussion	Seminar
knows and understands the importance of verbal and non-verbal communication in the process of communicating with the patient and the concept of confidence in interaction with the patient	D.W06	a discussion a final test an observation and evaluation of activities during the classes	Seminar
is familiar with the legal regulations concerning the provision of health services, patients' rights, foundations of practicing the profession of doctor and functioning of the medical self-government	G.W05	a discussion a final test an observation and evaluation of activities during the classes	Seminar
knows and understands the role of the family in the treatment process	D.W10	a discussion, a final test an observation and evaluation of activities during the classes	Seminar
knows and understands the legal regulations concerning medical confidentiality, keeping medical record, criminal, civil liability and professional liability of a doctor	G.W11	a discussion, a final test an observation and evaluation of activities during the classes	Seminar
can inform the patient of the purpose, course and possible risk of the proposed diagnostic or therapeutic measures and obtain the patient's informed consent to take such measures	D.U06	a discussion, a final test an observation and evaluation of activities during the classes	Seminar
knows and understands the patients' rights	D.W17	a discussion, a final test an observation and evaluation of activities during the classes	Seminar

Assignment conditions

The condition for taking a course credit test as part of the exercises is active participation in the classes and passing the final test in the written form. The test contains 40 single choice questions. 4 hours of justified absence are allowed. The substantive scope of classes related to absence must be complemented as part of direct consultations with the lecturer.

Percentages for grades: 95-100% = 5.0 88-94% = 4.5 75-87% = 4.0 68-74% = 3.5 60-67% = 3.0 0-59% = 2.0. In cases of absence from the classes, the Student should make up for the deficiencies within the time limit agreed upon with the lecturer as part of the consultations. The regulations regarding the conditions of taking a course credit test are equivalent to those of taking a course credit test directly, subject to the possibility of making changes if it is necessary to switch to taking a course credit test remotely within the statutory time, before the beginning of the examinations. Other regulations not mentioned above are specified in the Study Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Basic bibliography

1. *Ustawa z dnia 06 listopada 2008 o prawach pacjenta i rzeczniku praw pacjenta z późn. zmianami – tekst jednolity DZ. U. 2017 poz. 1318*

2. Karkowska Dorota, Ustawa o prawach pacjenta i rzeczniku praw pacjenta. Komentarz. Wolters Kluwer Polska Kraków 2016

3. Rek Tomasz, Hajdukiewicz Dariusz, Lekarz a prawa pacjenta. Poradnik prawny. Wolters Kluwer Polska 2016

Supplementary bibliography

1. Pacian Jolanta, Prawna ochrona zdrowia pacjenta. PZWL Warsaw 2017

2. Karkowska Dorota, Chojnacki Jacek, Postępowanie przed wojewódzką komisją ds. orzekania o zdarzeniach medycznych. Wolters Kluwer Polska Kraków 2014

3. Organizacje Pacjentów w Polsce. Raport z badań 2017, Instytut Praw Pacjenta i Edukacji Zdrowotnej, 2017

Patology 1

Course name	Patology
Course ID	12.9-WL-LEK-PAT
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Tomasz Huzarski, prof. UZ dr n. med. Jerzy Grabarek

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	20	Credit
Laboratory	30	Credit
Seminar	15	Credit

Aim of the course

The aim of education is to acquire knowledge about the mechanisms of disease development at the cellular and organ level as well as the ability to apply and interpret appropriate morphological tests. The ability to use the results of morphological and autopsy studies in connection with the symptoms of diseases for use in everyday professional practice.

Prerequisites: Knowledge of anatomy, physiology, biochemistry, molecular biology, pathophysiology.

Scope

Circulatory disorders, part 1:

Lecture: Basic concepts in Pathology: clot, thrombus, embolism. Right and left ventricular circulatory failure

Seminar: Causes of edema and blood clots

Histological slide: Blood clot - embolic material; Fresh clot;A clot in the process of organization; Heart wall clot; Blockage of bone marrow cells in the lungs; Cerebral edema; Splenic congestion; Hepatic congestion; Pulmonary oedema; Congestive lung sclerosis

2. Circulatory disorders, part 2

Lecture: Heart attack, Shock. Haemorrhage. Seminar: Atherosclerosis. Histological slide: Fresh heart attack; Scar after a heart attack; Nutmeg liver; Spleen infarction; Renal infarction; Softening of the cerebrum;

3. Retrograde and proliferative changes 1

Lecture: Liver cirrhosis. Seminar: Steatosis, Fatness, Obesity, Necrosis. Histological slides: Liver cirrhosis- core needle biopsy; Liver cirrhosis - core needle biopsy – mesh; Liver cirrhosis - core needle biopsy – CAB; Liver cirrhosis- hemochromatosis; Hepar anserinum; Steatosis of heart; Steatosis of pancreas; Enzymatic necrosis of adipose tissue

4. Retrograde and proliferative changes 2

Lecture: Atrophy, Hyperplasia, Hypertrophy, Metaplasia, Dysplasia. Seminar: Amyloidosis, Hemochromatosis. Histological slides: Heart hypertrophy; Heart atrophy; Osteoporosis; Liver

amyloidosis; Spleen amyloidosis; Kidney amyloidosis; Congo Red Staining – Kidney; Prostate nodular hyperplasia; Pulmonary emphysema; Atrophy of the thymus.
5. Inflammation, part 1
Lecture: General characteristics of inflammations. Types of inflammation. Pneumonia Seminar: Opportunistic infection. Histological slides: Pyoderma appendicitis; Pyosapinx; Gangrenous cholecystitis; Bronchopneumonia; Carnification of the lung ; Pneumocytic pneumonia; Ulcerative colitis; Leśniowski's - Chrona disease.
6. Inflammation, part 2
Lecture: Syphilis; Seminar: Leprosy, Sarcoidosis; Histological slides: Ghon complex/ primary complex– lung; Ghon complex/ primary complex - lymph node; Caseous tuberculosis of lymph node; Miliary tuberculosis of lungs; Skin sarcoidosis; Cytomegalovirus (CMV) nephritis.
7. Tumors, part 1
Lecture: Tuberculosis. General pathology of neoplasms. Seminar: Nomenclature and classification of neoplasms: benign, malignant, epithelial, mesenchymal. Histological slides:
Squamous papilloma; Hyperplastic polyp of the large intestine; Tubular adenocarcinoma of the large intestine; Villous adenoma of the large intestine; Ovarian serous cystadenoma; Mucinous ovarian cancer; Lipoma; Cutaneous neurofibroma/dermal neurofibroma; Neuroma; Dermatofibroma; Leiomyoma; Leiomyosarcoma; Liposarcoma
8. Tumors, part 2
Lecture: Apoptosis. Laser flow cytometer. Laser scanning cytometer. Seminar: Smoking cigarettes. Laryngeal cancer. Histological slides: Noduli cantorum/ vocal cord nodules; Lateral cyst of the neck; Squamous cell carcinoma of the larynx; Metastasis of squamous cell carcinoma to the lymph node.
9. Pathology of the respiratory system
Lecture: Lung cancer. Pleural mesothelioma. Seminar: Emphysema, pneumoconiosis, ARDS
Histological slides: Squamous cell carcinoma of the lung; Small cell carcinoma of the lung
Lung adenocarcinoma; Pleural mesothelioma; Liver FNAB - metastasis of small cell lung cancer.
10. Circulatory system pathology.
Lecture: Myocarditis, heart defects and cardiac neoplasms. Seminar: Vascular inflammations and neoplasms: Cardiac cavernous hemangioma; Lymphangioma; Vascular granuloma; 4. Giant cell myocarditis
11. Autopsy

Teaching methods
Education in the form of a laboratory, learning to recognize morphological images in a room equipped with microscopes and computers, under the supervision of an assistant. During the laboratory, participation in a series of autopsy classes in the auditorium located in the autopsy room is planned. Participation of students in the post-mortem examination. Seminars and lectures in the form of multimedia presentations.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows and understands the consequences of developing pathological changes for topographically neighboring organs	C.W32	a discussion an evaluation test written exam	Lecture Laboratory Seminar

is able to prepare a standard microscopic slide and recognize basic diseases	C.U09	an ongoing monitoring during classes	Lecture Laboratory Seminar
knows and understands the etiology of hemodynamic disorders, retrograde and progressive changes;	C.W30	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the fundamental mechanisms of cell and tissue damage	C.W27	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine	B.W29	a discussion	Lecture Laboratory Seminar
is able to link images of tissue and organ damage with clinical symptoms of the disease, medical history and results of laboratory determinations	C.U11	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the definition and pathophysiology of shock, with particular emphasis on the differentiation of causes of shock and multi-organ failure	C.W29	an evaluation test an oral response written exam	Lecture Laboratory Seminar
knows and understands the clinical course of specific and non-specific inflammations and the processes of tissue and organ regeneration;	C.W28	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the issues of detailed organ pathology, macro and microscopic images and the clinical course of pathomorphological changes in individual organs;	C.W31	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands external and internal pathogens, modifiable and non-modifiable	C.W33	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows the pathomorphological nomenclature	C.W26	an evaluation test written exam	Lecture Laboratory Seminar
is able to analyze the inflammatory reaction, immune response and adaptive phenomena as well as regulation disorders caused by the etiological factors	C.U12	a discussion activity during the classes written exam	Lecture Laboratory Seminar

Assignment conditions

1. There are four possible absences, justified by an appropriate document certifying an illness (sick leave) or a random accident, which the student should make up for in consultation with the teacher, before the final test in a given topic section. The justification should be presented to the teacher within 3 working days of the event. Unexcused absences mean the inability to complete the course.

2. Each class is preceded by a written (entry) test. In the case of failing the test, the Student receives -2 points (minus two points) for the final test for a given topic section. It is not possible to correct written tests.
3. During the course, the student takes 4 final tests - two in the winter semester and two in the summer semester. Passing all tests is a condition for taking the final exam.
The final test consists of 40 multiple-choice test questions, 4 of them are based on photos of microscopic preparations discussed during the laboratories, the remaining ones concern the theoretical part discussed during laboratories, lectures and seminars in a given thematic section. The student must be familiar with the course book (recommended literature). For a correctly solved question, the Student receives 1 point. To pass the test, you must obtain a minimum of 21 points, i.e. correctly answer more than 50% of the questions.
Final test score thresholds:
Very good (5.0) 37 - 40 points; Fairly good (4.5) 35 - 36 points; Good (4.0) 31 –34 points; Satisfactory plus (3.5) 28 - 30 points; Satisfactory (3.0) 21 - 27 points; Unsatisfactory (2.0) 0 - 20 points.
4. The first retake date for the final test takes the form of a written answer (essay) and is carried out within 7 days after the final test. The student answers 5 questions. For a correct and complete answer to the question, the Student receives 1 point. To pass the retake test, a minimum of 3 points should be obtained. Retake tests are assessed in the system: passed test (mark 3.0), failed test (mark 2.0). The second retake date for the final test takes place within 14 days before the final exam. If the second date of the retake test is not passed, the Student is not admitted to the final exam.
5. The final exam in the form of a test contains 130 multiple-choice questions. Thirty of them are based on photos of microscopic slides discussed during the laboratories, and the remaining ones concern the theoretical part discussed during laboratories, seminars and lectures. The student must be familiar with the course book (recommended literature).
In order to pass the final exam, you must obtain a minimum of 66 points. ie correctly answer more than 50% of the questions.
Final examination point thresholds: Very good (5.0) 118– 130 points; Fairly good (4.5) 105 - 117 points; Good (4.0) 92 - 104 points; Satisfactory Plus (3.5) 79 - 91 points; Satisfactory (3.0) 66 - 78 points; Unsatisfactory (2.0) 0 - 65 points
The resit exam is identical to the final examination or consists of open-ended essay questions. The final grade for the Pathology subject is the grade from the final exam.
6. The remaining conditions are specified in the Study Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow
7. In matters not included in the regulations, the subject coordinator decides in consultation with the Head of the Department.

Recommended reading

1. "Patologia znaczy słowo o chorobie". J. Stachura i W. Domagała. Wyd. PAU, Kraków, wyd. III, tom I, 2016 (ISBN 978-83-7676-241-8) i tom II, 2019 ISBN: 978-83-7676- 307-1)
2.„Podstawy patologii”. W. Domagała, M. Chosia, E. Urasińska. Wydawnictwo Lekarskie PZWL, 2010 (ISBN: 978-83-200-3499-8)
3.Atlas histopatologii”. W. Domagała, M. Chosia, E. Urasińska, Wydawnictwo Lekarskie PZWL, 2007 (ISBN 10:83-200-3476-0 lub ISBN 13:978-83-200-3476-9)

Further reading

Patologia Robbins V. Kumar, A.K. Abbas, J.C. Aster Edra Urban & Partner 2019 ISBN 978-83-66310-18-6

Patology II

Course name	Patology
Course ID	12.9-WL-LEK-PAT
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	6
ECTS credits to win	6
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Jerzy Grabarek dr hab. n. med. Tomasz Huzarski, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	20	Exam
Laboratory	30	Credit with grade
Seminar	15	Credit with grade

Aim of the course

The aim of education is to acquire knowledge about the mechanisms of disease development at the cellular and organ level as well as the ability to apply and interpret appropriate morphological tests. The ability to use the results of morphological and autopsy studies in connection with the symptoms of diseases for use in everyday professional practice.

Prerequisites: Knowledge of anatomy, physiology, biochemistry, molecular biology, pathophysiology.

Scope:

I. Digestive system pathology, part 1: Lecture: Pathology of the oral cavity. Seminar: Tumors of the salivary glands. Histological slides: 1. Fine-needle aspiration biopsy (FNAB) of pleomorphic adenoma (mixed tumor of salivary gland); 2. FNAB - Warthin tumor ("adenolymphoma", "papillary cystadenoma lymphomatosum); 3. Mixed tumor of the salivary gland; 4. Warthin tumor; 5. Oral cavity fibroma ; 6. Epulis, (peripheral) giant cell granuloma (giant cell epulis); 7. adenoid cystic carcinoma of the salivary gland

II. Digestive tract pathology, part 2: Lecture: Tumors of the stomach. Seminar: Inflammation and gastric ulcer disease. Histological slides: 1. Squamous cell papilloma of the esophagus; 2. Squamous cell carcinoma of the esophagus; 3. Fundic gland polyp (Elster polyp); 4. Diffuse advanced gastric cancer according to Lauren with lymph node metastasis; 5. Intestinal cancer of the stomach according to Lauren; 6. Lymphoma of the stomach (DLBCL); 7. Chronic gastritis with intestinal metaplasia; 8. Ectopic gastric mucosa in the duodenum; 9. Peptic ulcer of the stomach.

III. Gastrointestinal pathology, part 3: Lecture: Tumors of the liver and pancreas. Seminar: Hepatitis and pancreatitis. Histological slides: 1. Gallbladder cancer; 2. Cancer metastasis to the liver – FNAB; 3. Adenocarcinoma of the colon; 4. Metastasis of adenocarcinoma to the liver and lungs; 5. Hepatocellular carcinoma (HCC); 6. Metastasis of hepatocellular carcinoma to the lungs; 7. Neuroendocrine tumor of the appendix; 8. IHC staining. Synaptophysin; 9. IHC Chromogranin staining ; 10. IHC Ki-67 staining GIST; 11. IHC CD117 staining; 12. IHC CD34 staining; 13. IHC Desmin staining.

IV. Pathology of the thyroid gland and adrenal glands: Lecture: Tumors of the thyroid gland and adrenal glands . Seminar: Thyroiditis. Histological slides: 1. Papillary thyroid carcinoma; 2. Follicular thyroid carcinoma; 3. Medullary thyroid carcinoma; 4. Anaplastic thyroid carcinoma; 5. Fine needle aspiration biopsy (FNAB) - benign lesion of the thyroid gland; 6. FNAB- follicular thyroid carcinoma; 7. FNAB- papillary thyroid carcinoma; 8. FNAB- medullary thyroid carcinoma; 9. FNAB- anaplastic thyroid carcinoma;
V. Autopsy: Lecture: Tumors of the large intestine; Seminar: Colitis;
VI. Lymphatic system pathology: Lecture: Classification of leukemias and lymphomas . Seminar: Hodkin's disease. Histological slides: 1. Hodkin's disease; 2. DLBCL lymphoma; 3. MALT lymphoma; 4. Follicular lymphoma; 5. SLL lymphoma
VII. Pathology of the nervous system : Lecture: Tumors of the central nervous system. Seminar: Alzheimer's disease; Histological slides: 1. Meningioma; 2. Metastasis of breast cancer to the central nervous system; 3. Glioblastoma multiforme; 4. Oligodendroglioma; 5. Gliomas, fibrillary astrocytoma; 6. Pituitary adenoma; 7. Neurocytoma.
VIII. Pathology of the male reproductive system, part 1: Lecture: Tumors of the testicle and penis. Seminar: Testicular and epididymitis. Histological preparations: 1. Seminoma; 2. Embryonal carcinoma; 3. Yolk sac tumor; 4. Teratoma maturum; 5. Choriocarcinoma; 6. Hydrocele
IX. Pathology of the male reproductive system, part 2: Lecture: Prostate cancer and benign prostate hyperplasia. Seminar: Bladder cancer. Histological slides: 1. Benign prostatic hyperplasia; 2. Prostate cancer - core needle biopsy; 3. IHC beta keratin staining in prostate cancer; 4. IHC AMACR staining in prostate cancer; 5. Inflammation of the bladder lining (Cystitis glandularis). 6. Inflammation of the bladder lining (Cystitis cystica); 7. Urothelial carcinoma in situ.
X. Pathology of the urinary system: Lecture: Tumors, interstitial nephritis, cysts. Seminar: Transplantation. Histological slides: 1. Clear cell renal cell carcinoma; 2. Chromophobe renal cell carcinoma; 3. Papillary renal cell; arcinoma; 4. Collecting duct carcinoma; 5. Angiomyololipoma renis; 6. Chronic pyelonephritis; 7. Oncocytoma renis/ Oncocytoma of the kidney
XI. Pathology of the female reproductive system, part 1: Lecture: Breast cancer. Seminar: Benign breast hyperplasia. Histological slides: 1. Fibrous and cystic changes; 2. Fibroadenoma; 3. Ductal carcinoma in situ; 4. Carcinoma ductale infiltrans; 5. Carcinoma lobulare *in situ.* 6. Infiltrating lobular carcinoma
XII. Pathology of the female reproductive system, part 2: Lecture: Cervical cancer, carcinoma of the uterine corpus, salpingitis, ectopic pregnancy. Seminar: Ovarian tumors. Histological slides: CINI; 1. Endometrial hyperplasia of the uterine corpus, complex hyperplasia; 2. Endometrial polyp; 3. Endometriosis; 4. Leiomyoma; Leiomyosarcoma; 5. Granulosa cell tumor; 6. Fibrothecoma; 7. Serous cystadenoma of the ovary; 8. Serous adenocarcinoma of the ovary; 9. Dysgerminoma
XIII. Skin and skeletal pathology: Lecture: Malignant melanoma. Bone tumors; Seminar: Skin epithelial neoplasms; Histological slides: 1. Malignant melanoma; 2. Compound melanocytic nevus; 3. Seborrheic keratosis; 4. Squamous cell carcinoma; 5. Basal cell carcinoma ; 6. Epidermal cyst; 7. Tricholemmal cyst; 8. Neuroendocrine tumor; 9. Osteosarcoma; 10. Osteochondroma (exostosis, osteocartilaginous exostosis)
XIV. Childhood pathology. Lecture: Childhood cancers ; Seminar: Hemolytic disease. Cystic fibrosis.

Teaching methods
Education in the form of a laboratory, learning to recognize morphological images in a room equipped with microscopes and computers, under the supervision of an assistant. During the laboratory, participation in a series of autopsy classes in the auditorium located in the autopsy room is planned. Participation of students in the post-mortem examination. Seminars and lectures in the form of multimedia presentations.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows and understands the principles of scientific, observational and experimental research as well as in vitro research for the development of medicine	B.W29	a discussion activity during the classes	Lecture Laboratory Seminar
knows and understands the issues of detailed organ pathology, macro and microscopic images and the clinical course of pathomorphological changes in individual organs;	C.W31	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the consequences of developing pathological changes for topographically neighboring organs	C.W32	a discussion an evaluation test written exam	Lecture Laboratory Seminar
is able to prepare a standard microscopic slide and recognize basic diseases	C.U09	an ongoing monitoring during classes	Lecture Laboratory Seminar
knows and understands the etiology of hemodynamic disorders, retrograde and progressive changes;;	C.W30	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the fundamental mechanisms of cell and tissue damage	C.W27	an evaluation test an oral response written exam	Lecture Laboratory Seminar
is able to link images of tissue and organ damage with clinical symptoms of the disease, medical history and results of laboratory determinations	C.U11	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the definition and pathophysiology of shock, with particular emphasis on the differentiation of causes of shock and multi-organ failure	C.W29	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands the clinical course of specific and non-specific inflammations and the processes of tissue and organ regeneration;	C.W28	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows and understands external and internal pathogens, modifiable and non-modifiable	C.W33	a discussion an evaluation test written exam	Lecture Laboratory Seminar
knows the pathomorphological nomenclature	C.W26	an evaluation test written exam	Lecture Laboratory Seminar

Assignment conditions

1. There are four possible absences, justified by an appropriate document certifying an illness (sick leave) or a random accident, which the student should make up for in consultation with the teacher, before the final test in a given topic section. The justification should be presented to the teacher within 3 working days of the event. Unexcused absences mean the inability to complete the course.

2. Each class is preceded by a written (entry) test. In the case of failing the test, the Student receives -2 points (minus two points) for the final test for a given topic section. It is not possible to correct written tests.
3. During the course, the student takes 4 final tests - two in the winter semester and two in the summer semester. Passing all tests is a condition for taking the final exam.
The final test consists of 40 multiple-choice test questions, 4 of them are based on photos of microscopic preparations discussed during the laboratories, the remaining ones concern the theoretical part discussed during laboratories, lectures and seminars in a given thematic section. The student must be familiar with the course book (recommended literature). For a correctly solved question, the Student receives 1 point. To pass the test, you must obtain a minimum of 21 points, i.e. correctly answer more than 50% of the questions. Final test score thresholds:
Very good (5.0) 37 - 40 points; Fairly good (4.5) 35 - 36 points; Good (4.0) 31 –34 points; Satisfactory plus (3.5) 28 - 30 points; Satisfactory (3.0) 21 - 27 points; Unsatisfactory (2.0) 0 - 20 points.
4. The first retake date for the final test takes the form of a written answer (essay) and is carried out within 7 days after the final test. The student answers 5 questions. For a correct and complete answer to the question, the Student receives 1 point. To pass the retake test, a minimum of 3 points should be obtained. Retake tests are assessed in the system: passed test (mark 3.0), failed test (mark 2.0). The second retake date for the final test takes place within 14 days before the final exam. If the second date of the retake test is not passed, the Student is not admitted to the final exam.
5. The final exam in the form of a test contains 130 multiple-choice questions. Thirty of them are based on photos of microscopic slides discussed during the laboratories, and the remaining ones concern the theoretical part discussed during laboratories, seminars and lectures. The student must be familiar with the course book (recommended literature).
In order to pass the final exam, you must obtain a minimum of 66 points. The correctly answer more than 50% of the questions. Final examination point thresholds: Very good (5.0) 118– 130 points; Fairly good (4.5) 105 - 117 points; Good (4.0) 92 - 104 points; Satisfactory Plus (3.5) 79 - 91 points; Satisfactory (3.0) 66 - 78 points; Unsatisfactory (2.0) 0 - 65 points.
The resit exam is identical to the final examination or consists of open-ended essay questions. The final grade for the Pathology subject is the grade from the final exam. 6. The remaining conditions are specified in the Study Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow
7. In matters not included in the regulations, the subject coordinator decides in consultation with the Head of the Department.

Recommended reading

1. "Patologia znaczy słowo o chorobie". J. Stachura i W. Domagała. Wyd. PAU, Kraków, wyd. III, tom I, 2016 (ISBN 978-83-7676-241-8) i tom II, 2019 ISBN: 978-83-7676- 307-1)
2.„Podstawy patologii”. W. Domagała, M. Chosia, E. Urasińska. Wydawnictwo Lekarskie PZWL, 2010 (ISBN: 978-83-200-3499-8)
3.Atlas histopatologii”. W. Domagała, M. Chosia, E. Urasińska, Wydawnictwo Lekarskie PZWL, 2007 (ISBN 10:83-200-3476-0 lub ISBN 13:978-83-200-3476-9)

Further reading

Patologia Robbins V. Kumar, A.K. Abbas, J.C. Aster Edra Urban & Partner 2019 ISBN 978-83-66310-18-6

Pharmacology with Toxicology

Course name	**Pharmacology and toxicology**
Course ID	12.9-WL-LEK-FTOK
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	6
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Sylwia Michalak

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	20	Credit
Seminar	30	Credit
Lecture	15	Credit

Aim of the course

The primary objective of teaching pharmacology and toxicology is to get acquainted with basic terminology and topics related to pharmacodynamics, pharmacokinetics, toxicology, the objective is also to present the advantages and dangers related to pharmacology. Student acquire a knowledge of mechanisms of actions of medicine, their interactions and side effects and also learns ways of writing medical prescriptions for prescription medicines and pharmacy medicines and reporting side effects.

Prerequisites

Knowledge in the field of biochemistry, anatomy, physiology and pathophysiology.

Scope

Lecture: 1. Introduction to pharmacology, pharmacodynamics, pharmacokinetics, LADME. 2. General anaesthetics, myorelaxants; 3. Pain management, opioid and non-opioid analgesics, non-steroidal anti-inflammatory drugs; 4. Medicine used in treatment of hypertension; 5.Medicine used in coronary artery disease, lipid-lowering agents, anticoagulants; 6. Medicine used in cardiac arrythmia; 7. Diuretics. Medicine used in congestive heart failure; 8. Introduction to autonomic nervous system drugs; 9. Medicine used in disorders of extrapyramidal system; 10. Anticonvulsants. 11. Hematopoietic drugs, haemostatic agents, medicine used in treatment of anaemia; 12. Drugs used in chemotherapy of malignant neoplasms; 13. Introductions to psychotropic medicines.

Class: 1. Parts of medical prescription. Basic principles of prescribing medicine. Using various forms of information about drugs. Pills, capsules, dragees, lozenges. Paediatric drug dosages. 2. Learning calculations paediatric drug dosing; 3. Fates of drugs in human body. Mechanisms of drug actions. Factors which modify drug action. Basic pharmacokinetic calculations. Reporting adverse drug effects. 4. Basic knowledge of prescription medicines. Drops. Pharmaceutical powders for internal and external use; 5. Pharmacotherapy of hypertension. Writing prescriptions for hypertension drugs. 6. Pharmacotherapy of coronary artery disease and congestive heart failure. Writing prescription for cardiological drugs; 7. Antiarrhythmic agents. Writing prescriptions for selected groups of drugs. 8. Solutions and suspensions for injection. Principles of calculating dosages and means of administration for infusion pump and intravenous drip infusion. 9. Sympathetic and parasympathetic drug usage in emergencies; 10. Local and general anaesthetics; 11. Calculations

for prescription suppositories; 12. Principles for prescribing narcotic drugs and psychotropic substances. Patches; 13. Tranquillisers, anti-anxiety drugs, hypnotic drugs. Enemas; 14. Immunomodulating drugs. Biologic agents. Gene therapy; 15. Prescription drugs: ointments and creams.

Seminars: 1. Colloid and crystalloid solutions. 2. Drugs affecting sympathetic nervous system; 3. Drugs affecting parasympathetic nervous system; 4. Nootropic drugs and brain and limb blood flow stimulating medicine. Treatment for gout; 5. Local anaesthetics; 6. Neurological drugs: anticonvulsants, drugs used in extrapyramidal system disorders; 7. Drugs used in chemotherapy for neoplasms.

Teaching methods

Classes will be done as seminars and classes. Seminars and classes: circumlocution and discussion about pharmacology. During classes students will be practicing skills of prescribing prescription medicines and pharmacy medicines as well as using various sources of information about drugs. Problem and case based discussion of clinical cases. Lectures in the form of multimedia presentations.

Learning outcomes and methods of theirs verifications

Outcome description	Outcome symbols	Methods of verification	The class form
Student is able to prescribe all forms of prescriptions drugs for all medicinal substances	C.U16	activity during the classes an evaluation test an oral response a written response	Class
Student knows basic acts of the pharmaceutical law.	G.W10	an ongoing monitoring during classes an oral response	Class Seminar
Student knows and understands types of medications	C.W35	activity during the classes an evaluation test an oral response a written response, exam	Lecture Class Seminar
Student knows and understands indications for genomic testing as a tool to optimise drug therapy	C.W41	activity during the classes an written response	Lecture Seminar
Student is able do basic pharmacokinetic calculations	C.U13	activity during the classes a written response	Class
Student is able use summary of product characteristics and pharmacological data bases	C.U17	an ongoing monitoring during classes	Class
Student knows and understands basic development direction, in particular cell and gene therapy as well as targeted therapy	C.W42	an evaluation test exam	Lecture
Student knows and understands mechanisms of drug resistance in particular multi drug resistance	C.W40	activity during the classes an evaluation test an oral response a written response, exam	Lecture Class Seminar
Student is able to plan rational antibiotic therapy, empirical and targeted antibiotic therapy	C.U15	activity during the classes an oral response a written response	Class

Student is able to correct dosage in order to minimalize pathological and adverse reactions	C.U14	activity during the classes an oral response a written response	Class
Student knows and understands diagnostic approach to the poisoned patient	C.W46	activity during the classes an evaluation test an oral response a written response, exam	Lecture Class Seminar
Student is able to estimate toxic risk assessment in specific age groups, in liver and kidney failure and is able to prevent drug poisoning	C. U18	activity during the classes an evaluation test an oral response a written response, exam	Class
Student knows and understands role of disease pathophysiology for drug metabolism and elimination	C.W37	activity during the classes an evaluation test an oral response a written response, exam	Lecture Class Seminar
Student knows and understands poisoning with drugs of abuse	C.W44	activity during the classes an evaluation test an oral response a written response, exam	Lecture Class
Student knows and understands basic terms from general toxicology	C.W38	an evaluation test an exam	Lecture
Student knows and understands main principles of drug action and age influence on drug metabolism	C.W36	activity during the classes an evaluation test an oral response a written response, exam	Lecture Class Seminar
Student knows and understands drugs side effects especially drug interaction related side effects	C.W39	activity during the classes an evaluation test an oral response a written response, exam	Lecture Class Seminar
Student knows basic pharmacoeconomic terms	E.W43	Discussion an evaluation test	Lecture Class Seminar

Assignment conditions

Lecture classes: Lecture attendance is mandatory. Course ends with final exam after semester VI. Final exam is comprise of 100 questions or tasks. To pass the final exam test student must obtain minimum 60% of points. The condition for admission to the examination is positive completion of the exercises and seminars classes. A make-up exam form is oral. In case of distance examination change of exam form is possible (in regulation time, before end-of-term examinations base on distance regulation of examination).

Exercise and seminar classes: The condition for the class is obtaining positive grade form all classes in course. Grade from seminar is comprised of an evaluation tests in oral or written form and grades from activity during the classes. Class grade is comprised of grades acquired during classes in form of prescription tests and grades from activity during classes. To pass the evaluation test student must obtain minimum 60% of points. Classes and seminars starts with quiz testing theoretical preparation for class. Quiz may by done in oral or written form and it will be done by lecturer, passing the quiz is mandatory for class/seminar attendance. Attendance at all classes and seminar is mandatory. In case of excused absence student is obliged to make up missed classes lecturer will provide reasonable alternatives that permit course objectives and learning outcomes to be met. Excused absences can't exceed 10% of hours per semester for each one of class form. Each failed

quiz or evaluation test can be retaken up to 3 times. Other regulations not specified here are explained in Regulamin Studiów na Uniwersytecie Zielonogórskim
Final grade: arithmetic mean of all forms provided for the course. The results of the mean are determined according to the principle: mean 3.25 is the final mark of 3.5; mean 3.75 is the final score of 4.0; mean 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0.
Evaluation tests and exam scores: from 0% - 59% gets unsatisfactory (2.0) and fails the final exam - from 60% - 69% gets satisfactory (3.0); - from 70 % - 79% gets satisfactory plus (3.5); from 80 % - 89% gets good (4.0); from 90 % - 95% gets fairly good (4.5); from 96% - 100% gets very good (5.0)
Other regulations not specified here are explained in Regulamin Studiów na Uniwersytecie Zielonogórskim https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

Basic Literature

1. Basic and Clinical Pharmacology 15e;Bertram Katzung, Anthony Trevor; McGraw-Hill Education / Medical2021; ISBN: 9781260452310
2. Rang & Dale's Pharmacology; Humphrey P. Rang, James M. Ritter, Yoon Kong Loke Rod J. Flower, Graeme Henderson, David MacEwan : Elsevier2019; ISBN: 9780702074486

Supplementary literature

1. Rang & Dale's Pharmacology Flash Cards; Yoon Kong Loke, Katharina Mattishent; Elsevier

Practical Radiology - elective course

Course name	Practical Radiology - elective course
Course ID	12.8-WL-LEK-PWRP
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	8
ECTS credits to win	2
Course type	Elective
Teaching language	English/Polish
Author of syllabus	dr n. med. Wojciech Wierzchołowski

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	30	Credit

Aim of the course

1. Knowledge of the possibilities and limitations of ultrasound imaging.
2. Knowledge of ultrasound images of typical pathologies in the abdominal cavity and superficial organs
3. Acquainting with the specificity of pediatric ultrasonography.
4. Ultrasound in comparison with other imaging methods
5. Expanding knowledge in the field of diagnostic imaging.

Prerequisites

1. Knowledge of anatomy, including topographic anatomy; 2. Knowledge of pathophysiology; 3. Knowledge of the basics of diagnostic imaging

Scope

1. Basics principles of ultrasonography: a. construction of the apparatus and types of probes b. artifacts in ultrasound imaging and methods of their elimination; c. ultrasound imaging options
2. Diagnostics of defects and diseases of the genitourinary system with particular emphasis on the role of ultrasound examination
3. Multimodal imaging diagnostics of gastrointestinal system diseases.
4. Ultrasound of the thyroid gland
5. Multimodal imaging diagnostics of pulmonary and cardiovascular diseases
6. Imaging of diseases and consequences of injuries of the central nervous system.
7. Imaging diagnosis of the consequences of skeletal system injuries.
8. Imaging diagnosis of the consequences of injuries of the abdominal cavity and pelvis.

Teaching methods: Classes are conducted in a group of 10-12 students at computers, teaching using examples of images and videos from ultrasound examinations, as well as examining patients from clinical departments. Active participation in performing ultrasound examinations.

Learning outcomes and methods of theirs verifications

Outcome description	Outcome symbols	Methods of verification	The class form
The student is able to assess the result of a radiological examination of the most common types of fractures, especially those of long bones;	F.U07	activity during the classes an oral response	Class
The student knows and understands the issues of contemporary imaging tests, in particular: 1) radiological symptomatology of basic diseases, 2) instrumental methods and imaging techniques used to perform medical procedures, 3) indications, contraindications and preparation of the patient for specific types of imaging tests and contraindications for use contrast agents;	F.W10	activity during the classes an oral response	Class
The student knows and understands the causes, symptoms, principles of diagnosis and therapeutic management in relation to the most common diseases requiring surgical intervention, taking into account the distinctiveness of childhood, including in particular: 1acute and chronic diseases of the abdominal cavity, 2) chest diseases, 3) limb and head diseases, 4) bone fractures and organ injuries;;	F.W01	activity during the classes an oral response	Class

Assignment conditions

Participation in classes with activity assessment in the form of oral questions on the topic covered. A student may miss 1 class, an excuse for the absence is required. Making up for absences - by reading the material posted on the e-learning platform with the verification of knowledge in the form of oral questions.

The regulations on the conditions for passing the classes are for direct meetings, any changes related to the necessity to switch to remote classes will be perform during the regulatory period, before the start of the session. Other conditions, not mentioned in this point, are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. W. Herring, Podrcznik radiologii. Urban & Partner 2020
2. L. Wicke, red. M. Sąsiadek, Atlas anatomii radiologicznej 2009
3. J. Banholzer, P. Banholzer, (red.) W. Jakubowski, 2014,Ultrasonografia.
4. M. Jaspers Ultrasonografia narządów i tkanek w zestawieniu z klinicznymi objawami Medipage 2015

Further reading

1. Czasopisma dostępne w Bibliotece Uniwersyteckiej UZ, cyfrowe bazy danych – nauki medyczne i nauki o zdrowiu; http://www.bu.uz.zgora.pl/

Weber E., J.A. Vilensky, Carmichael S.W., Lee K.S., Atlas anatomii radiologicznej, Netter, 2011

Propedeutics of Internal Medicine

Course name	Propedeutics of Internal Medicine
Course ID	12.0-WL-LEK-Pchw
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	5
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Person responsible for course: Józef Haczyński Teachers: Team of hospitals doctors

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Zajęcia kliniczne	30	Credit with grade
Seminar	10	Credit with grade
Lecture	30	Credit with grade

The aim of course:

C1. Mastering the skills of collecting and interpreting medical history in an adult patient

C2. Mastering the ability to assess the patient's general condition, state of consciousness and awareness, paying attention to the diagnosis of life-threatening conditions requiring immediate medical intervention

C3. Mastering the technique of physical examination of an adult patient with the interpretation of the overall disease picture and planning the basic diagnostic process

C4. Getting to know the causes, symptoms and principles of differential diagnosis of the most common disease entities occurring in internal diseases, including the basis for the interpretation of additional tests

C5. Learning about the environmental and epidemiological conditions of the most common internal diseases, taking into account the specificity of the elderly and oncological vigilance

C6. Application of ethical, social and legal determinants of the medical profession and the principles of health promotion, based on scientific evidence and the philosophy of humanization of medicine

Prerequires: Use of knowledge from subjects related to basic sciences, such as knowledge of anatomy, physiology, pathophysiology, pathomorphology and ebm, ethics, patient rights and humanization of medicine

Scope:

1. Assessment of the patients general condition, consciousness of the patient
2. Conducting and interpreting the anamnesis
3. Carry out and interpret a physical examination of the head, chest and abdomen
4. Etiopathogenesis, symptomatology, differential diagnosis and prevention of diseases of the circulatory, respiratory, hematology, digestive, urinary, endocrine and movement systems, with particular emphasis on the specificity of the elderly and in oncological vigilance, in particular:

- cardiovascular diseases, including ischemic heart disease, heart defects, endocardial diseases, heart muscle, pericardium, heart failure (acute and chronic), arterial and venous diseases, arterial hypertension - primary and secondary, pulmonary hypertension,

- respiratory diseases, including chronic obstructive pulmonary disease, bronchial asthma, bronchiectasis, cystic fibrosis, respiratory tract infections, interstitial lung diseases, pleura, mediastinum, obstructive and central sleep apnea, respiratory failure (acute and chronic), cancers of the respiratory system,
- diseases of the digestive system, including diseases of the oral cavity, esophagus, stomach and duodenum, intestines, pancreas, liver, bile ducts and gall bladder,
- diseases of the endocrine system, including diseases of the hypothalamus and pituitary, thyroid, parathyroid, cortex and adrenal medulla, ovaries and testes and neuroendocrine tumors, multi-glandular syndromes, various types of diabetes and metabolic syndrome - hypoglycaemia, obesity, dyslipidemia,
- diseases of the kidneys and urinary tract, including acute and chronic renal failure, diseases of the renal glomeruli and interstitial kidneys, kidney cysts, kidney stones, urinary tract infections, cancers of the urinary system, in particular of the bladder and kidney,
- diseases of the hematopoietic system, including bone marrow aplasia, anemia, granulocytopenia and agranulocytosis, thrombocytopenia, acute leukemias, myeloproliferative neoplasms and myelodysplastic-myeloproliferative neoplasms, myelodysplastic syndromes, tumors from mature b and t lymphocytes, life-threatening hemorrhagic states hematology, blood disorders in diseases of other organs,
- rheumatic diseases, including systemic connective tissue diseases, systemic vasculitis, arthritis involving the spine, metabolic bone diseases, in particular osteoporosis and osteoarthritis, gout,
- allergic diseases including anaphylaxis and anaphylactic shock and angioedema,
- water-electrolyte and acid-base disorders: states of dehydration, fluid-overload states, electrolyte disturbances, acidosis and alkalosis
5. The process of making a diagnosis based on the results of anamnesis and physical examination, differential diagnosis, selection and interpretation of the results of additional tests using evidence-based medicine and the philosophy of humanization of medicine
6. Keeping medical records.
7. Basics of epidemiology and environmental and occupational conditions occurring in internal diseases
8. Characteristics of hospital treatment.

Education methods:
Exercises in groups of 5-6 people conducted in the internal medicine ward with particular emphasis on skillful interviewing and accurate and targeted physical examination. Lectures in multimedia form.

Learning outcomes and methods of theirs verifications

Description of the effect	Symbol of effects	Methods of verification	Form of classes
know the environmental, epidemiological and occupational conditions of the most common diseases	E.W1	Descriptive tests, knowledge test and practical tests, discussion	lecture and lessons at the patient's bedside
know and understands the causes, symptoms, principles of diagnosis and the basics of therapeutic management in relation to the most common internal diseases	E.W7	Descriptive tests, knowledge test and practical tests, discussion	lecture and lessons at the patient's bedside

know and understands the process and symptoms of the aging as well as a comprehensive geriatric assessment and interdisciplinary care in relation to an elderly patient	E.W8	Descriptive tests, knowledge test and practical tests, discussion	lecture and lessons at the patient's bedside
understand the causes and knows the basic differences in the most common diseases occurring in the elderly and the rules of conduct in basic geriatric syndromes	E.W9	Descriptive tests, knowledge test and practical tests, discussion	lecture and lessons at the patient's bedside
know and understand the dangers of hospitalization of elderly people	E.W11	Descriptive tests, knowledge test and practical tests, discussion	lecture and lessons at the patient's bedside
conduct an interview with an adult patient and is able to properly interpret the answers obtained	E.U1	Oral answer, verification during lessens at the patient's bedside, practical exam, descriptive tests and knowledge tests	lecture and lessons at the patient's bedside
conduct a full and targeted physical examination of an adult patient, carry out differential diagnosis of the most common diseases of adults	E.U3 E.U12	Oral answer, verification during lessens at the patient's bedside, practical exam, descriptive tests and knowledge tests	lecture and lessons at the patient's bedside
assess the general condition, state of consciousness and awareness of the patient recognizes the states of imminent threat to life;	E.U7 E.U14	Oral answer, verification during lessens at the patient's bedside, practical exam, descriptive tests and knowledge tests	lecture and lessons at the patient's bedside
keep the patient's medical records	E.U38	Oral answer, verification during lessens at the patient's bedside, practical exam, descriptive tests and knowledge tests	lecture and lessons at the patient's bedside

Assessment conditions:

The student's knowledge and practical skills will be verified in the form of preliminary tests, observation of the student's work, evaluation of preparation for classes, evaluation of activity during classes, case reports, partial credits and final credit.

Preparation for exercises is verified in oral or written form. The mastery of individual batches of material is verified in the form of descriptive and / or test tests (a mix of single and multiple choice questions) after the end of a given thematic block. The condition for passing the semester is

obtaining a credit for the exercises and knowledge tests as well as the attendance at lectures. The condition for admission to the final credit is to pass both semesters.
Final credit consists of a practical part in direct contact with the patient and a theoretical part (test). The practical part is assessed for the ability to communicate with the patient, carefully collect an interview, and properly interpret subjective ailments and abnormalities found in the physical examination. In the event of receiving an unsatisfactory grade, the student is entitled to correct it within the time limit agreed with the person conducting the classes or authorized by the head of the teaching unit by the end of the academic year.
The assessment from the practical part is the assessment from the exercises. The final grade is the grade obtained by the student in the theoretical part of the final exam.
Passing the theoretical part will be conducted in the form of a test consisting of 100 single-choice and multiple-choice questions (1 question - 1 point). Duration of the exam - 100 minutes (1 question - 1 minute). The threshold for passing the theoretical part is 65% (the minimum number of points to pass - 65). Scoring - grades: <65 - 2.0; 65-71 points - 3.0; 72-78 points - 3.5; 79-85 points - 4.0; 86-92 points - 4.5; 93-100 points - 5.0
In the event of receiving an unsatisfactory grade, the student is entitled to correct it by the end of the academic year, within the time limit agreed with the person conducting the classes or authorized by the head of the teaching unit.
Other conditions, not mentioned in this point, are specified in the study regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow.

Basic literature:
Macleod - Clinical examionation authors Douglas G, Nicol F Robertson C. Edra Urban & Partner Wrocław 2017, 2nd edition
Additionary literature:
1. Stuart H, Ralston SH, Penman ID Internal Diseases vol 1, 2 and 3. Edra Urban & Partner Wrocław 2020, 23rd edition
2. Journals available in the university library of the University of Zielona Góra, digital databases - medical sciences and health sciences; http://www.bu.uz.zgora.pl/

Public Health

Course name	Public Health
Course ID	12.7-WL-LEK-ZPUB
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	6
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Assoc. Prof. Joanna Mazur, MS, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade

Aim of the course:

After this course the student will be able to describe the purpose of public health, define key terms used in public health, recognize the core public health functions and services, list some determinants of health, recognize how individual determinants of health affect population health. Practical skills will be formed in finding and interpreting information on population health, with particular emphasis on contemporary world problems.

Prerequisites: None

Scope:

1. Describe public health history as well as some new concepts (Social Inequalities in Health, One Health, Planetary Health);
2. Identify and list the core functions of public health;
3. Explain the relationship of public health to other disciplines (e.g., Epidemiology, Biostatistics, Social & Behavioural Sciences, Health Policy, Environmental Health);
4. Identify appropriate methods for assessing health status of the population and the determinants of health (data sources, databases, visualization, construction and interpretation of indicators, use of health needs map);
5. Discuss major causes and trends of morbidity and mortality in Poland and the OECD countries, explain the concept of the global burden of diseases and avoidable mortality;
6. Discuss health problems of selected population groups;
7. Explain the difference between disease prevention and health promotion, including health promotion in various settings, and the basics of building and implementing intervention programs (with examples);
8. Presentation of the functioning of the health care system in selected countries, various aspects of financing and management, law regulations and contemporary problems of globalization.

Teaching methods:

Lectures supported with e-learning CM platform. Additional readings and resources will be provided together with slides before each lecture. Students are expected to participate in discussion throughout the duration of this course. Especially case studies will be discussed. Through

the e-learn platform, students will submit additional credit work, mandatory and optional tasks will be given by teacher on the terms provided at the first class.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student is able to collect information on the presence of risk factors for infectious and chronic diseases and plan preventive measures at different levels of prevention;	G.U02	Activity on the e-learn platform, discussion, final test	Lectures
The student knows how to identify and study risk factors, the advantages and disadvantages of various types of epidemiological studies, and measures that indicate the presence of causal relationships;	G.W02	Activity on the e-learn platform, discussion, final test	Lectures
The student is able to use databases, including online databases, and find the necessary information using the available tools;	B.U10	Activity on the e-learn platform, discussion, final test	Lectures
The student knows the functioning of the entities of the health care system and the social role of the medical doctor;	D.W08	Activity on the e-learn platform, discussion, final test	Lectures
The student is able to describe the demographic structure of the population and, on this basis, assess population health problems;	G.U01	Activity on the e-learn platform, discussion, final test	Lectures
The student is familiar with methods of assessing the health status of individuals and populations, various disease classification systems and medical procedures;	G.W01	Activity on the e-learn platform, discussion, final test	Lectures
The student knows the basic legal regulations on the organization and financing of the health care system, universal health insurance and the principles of organization of medical entities;	G.W06	Activity on the e-learn platform, discussion, final test	Lectures
The student is able to assess the epidemiological situation of diseases common in the Republic of Poland and the world;	G.U04	Activity on the e-learn platform, discussion, final test	Lectures
The student is able to interpret measures of the prevalence of diseases and disabilities;	G.U03	Activity on the e-learn platform, discussion, final test	Lectures
The student knows the concept of public health, its goals, objectives, and the structure and organization of the health care system at the national and global levels, as well as the impact of economic conditions on health care options;	G.W04	Activity on the e-learn platform, discussion, final test	Lectures
The student knows the social factors that influence behavior in health and disease.	D.W02	Activity on the e-learn platform, discussion, final test	Lectures

Assignment conditions

1. Participation in lectures in accordance with the study regulations.
2. Completion of the mandatory tasks on CM e-learning platform; optional tasks additionally scored
3. Obtaining at least 60% of points on the final test; 30-40 questions with single answer

The following criteria for final test grade will be applied: from 0% - 59% gets unsatisfactory (2.0) and fails the final test; from 60% - 67% gets satisfactory (3.0); from 68 % - 75% gets satisfactory plus (3.5); from 76 % - 84% gets good (4.0); from 85 % - 93% gets fairly good (4.5); from 94% - 100% gets very good (5.0).

Final grade as weighted average of the activity on the CM platform and the final test; weight 0,5 each.

RECOMMENDED BOOKS:

1. Health at a Glance 2021. OECD report. Current version available at: https://www.oecd.org/health/health-at-a-glance/
2. B.J. Turnock. (2015). Public Health. What it is and how it works. Jones & Bartlett Learning.

Rehabilitation

Course name	**Rehabilitation**
Course ID	12.9-WL-LEK-REH
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	9
ECTS credits to win	1
Course type	obligatory
Teaching language	English/Polish
Author of syllabus	Franciszek Pietraszkiewicz, MD, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	15	Credit with grade
Lecture	15	Credit with grade

Aim of the course

The aim of education is to acquire the skills of functional assessment of a disabled patient; assessment of indications and contraindications for the use of physiotherapy on the basis of knowledge of the physiology and pathology of physical effort; assessment of the impact of physiotherapy on human functional systems, in particular the circulatory system and the respiratory system; planning the rehabilitation program and supplying rehabilitation equipment in dysfunctions of individual systems. Acquainting the student with the latest scientific achievements in rehabilitation. Acquisition by the student of basic skills necessary in conducting research clinical knowledge and the integration of clinical knowledge and skills with scientific evidence.

Prerequisites

Knowledge of anatomy, physiology, medical physics, propaedeutics of internal diseases, radiology.

Scope

Lecture

1. Rehabilitation - terminology, the concept of disability, invalidity and disability, historical outline. Rehabilitation team, organization of rehabilitation in Poland, rehabilitation as a comprehensive process.
2. The impact of physical activity on the human body and health. Physiological basics of physiotherapy.
3. Rehabilitation after injuries. Rehabilitation in the prevention of falls and osteoporotic fractures.
4. Rehabilitation in diseases of the nervous system and the locomotor system.
5. Basics of improving obese people. Back pain - a disease of civilization.
6. Physiological foundations of children's improvement. Postural defects and scoliosis. Elements of medical certification

Clinical classes

1. Application, indications and contraindications of particular types of physiotherapy.
2. Functional examination, assessment of muscle strength, range of joint movements, daily activity (ADL).
3. Rehabilitation equipment as well as orthopedic and technical assistance in improving the functioning of disabled people. Prostheses, orthoses and orthopedic supplies.

4. Rehabilitation in diseases of individual systems: circulatory, respiratory, nervous and movement. Oncological rehabilitation.
5. Rehabilitation in geriatrics.
6. The role of a psychologist and speech therapist in rehabilitation.

Teaching methods

Lectures in the form of multimedial presentations. Laboratory classes include a practical presentation and active participation of the student in the exercises in small groups take place in the rehabilitation department. The student participates in the planning of rehabilitation.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows the rules of conducting scientific, observational and experimental research and in vitro research for the development of medicine	B.W34	activity during the classes an ongoing monitoring during classes	Classes Lecture
Student is able to plan a rehabilitation program in selected metabolic diseases, cardiovascular, respiratory, nervous and movement systems	E.U23	an observation and evaluation of activities during the classes	Classes Lecture
Student has knowledge of the basics of rehabilitation; knows and understands the concept of rehabilitation, disability, invalidity, disabilities;	E.W30	a discussion an evaluation test an observation and evaluation of activities during the classes	Classes Lecture
Student can assess the functional status of an orthopedic and neurological patient, cardiological and pulmonary	E.U22	a discussion an evaluation test an observation and evaluation of activities during the classes	Classes Lecture
Has knowledge of physiotherapy and its tasks in the rehabilitation of people with diseases cardiovascular, respiratory, nervous and motor systems as well as paediatrics, geriatrics, psychiatry, gynecology and obstetrics	E.U23	an evaluation test an oral response	Classes Laboratory

Assignment conditions

Preparation for classes verified orally by the teacher points obtained during the laboratory classes. Absences - during the lectures the permissible limit of absences justified by an appropriate document confirming an illness (sick leave) or an accident the random amount is 4 hours, which the student must do on time and in the manner agreed with the teacher. The justification should be presented to the teacher in within 3 business days of the incident. Presence during the exercises is obligatory and is one of the conditions for passing the course. In cases (illness or accident), it will be possible to make up for the classes on another agreed date. Unexcused absences mean no possibility pass the course.
Passing the lectures - obligatory presence and verbal knowledge check before starting clinical classes. Lack of preparation in terms of prerequisites and knowledge delivered during the lectures

will result in not admitting clinical classes (oral correction is necessary for the teacher during the week).

Passing the classes - the student is obtained after correct completion of the assigned task (functional assessment, measurement of the range of joint movements, setting up the rehabilitation program, determining contraindications to physical therapy in a specific patient). Failure to pass the exercises requires correction at the teacher's premises - after prior appointment in deadline of two weeks (maximum 3 attempts) Particular activity during lectures and clinical classes will be rewarded with an additional sum of 1 to 3 points added to the final test. Immediately after completing the exercises in the rehabilitation department, a final test will be carried out for each exercise group to check the acquisition of knowledge with the scope of the assumed learning outcomes (material from lectures, clinical classes and recommended literature). Multiple-choice test, 20 closed questions. To the test results points for activity will be added. Gaining a total of 60% out of 20 is a condition for passing. The obtained sum of points will be converted into degrees according to the scale: 94-100% = 5.0; 85-93% = 4.5; 76-84% = 4.0; 68-75% = 3.5; 60-67% = 3.0; 0-59% = 2.0.

Failure to pass the test on the first date requires correction (the first attempt - a new test, the second attempt orally before the committee composed of the subject coordinator and assistant instructor). The student is admitted to the final test on the basis of passing the exercises. The final grade is the grade resulting from the test result and the added points for the activity. The regulations on the conditions for crediting correspond to the conditions for direct crediting, subject to changes, if necessary switching to remote crediting during the regular time, before the start of the session.

The remaining conditions are specified in the Study Regulations of the University of Zielona Góra https://www.uz.zgora.pl/index.php?regula

Basic literature:

1. David X. Cifu. Braddom's Physical Medicine and Rehabilitation. Elsevier, sixth edition 2020
2. Martis Gonzalez-Fernandez. Handbook of Physical Medicine and Rehabilitation. Springer Publishing Co Inc, 2021
3. Patricia Jackson. Physical Medicine and Rehabilitation: Principles and Practice. Murphy & Moore Publishing, 2022

SARS-Cov-2 in questions and answers- elective course

Course name	SARS-Cov-2 in questions and answers- Elective course
Course ID	12.0-WL-LEK-SwPiO
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	7
ECTS credits to win	2
Course type	Elective
Teaching language	English/Polish
Author of syllabus	Prof. Maria Gańczak MD, PhD

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Class	30	Credit

The aim of the course

The aim of the course is to prepare the student to correctly obtain and interpret information regarding the SARS-CoV-2 pandemic in the context of the role played by medical staff in the aspect of communication with the patient / society and to use the acquired knowledge to plan and conduct an epidemiological study. Particular emphasis will be placed on the use of information from reliable sources, including evidence-based medicine.

Specific objectives:

1. Acquisition of skills necessary for the correct interpretation of information regarding the SARS-Cov-2 pandemic, such as:

- Searching for professional literature on selected issues; Correct interpretation of information obtained from professional literature

2. Planning a scientific study on SARS-CoV-2, including: determining the study objective and research hypotheses; selection of methods, techniques and research tools; documents for the bioethics committee, funding of the study; elements affecting the proper conduct of the study; principles and forms of presenting results

Prerequisites

Knowledge of epidemiology in the field of medical studies.

Scope

The program of the course includes 10 three-hour meetings, which will take place once a week and will take the form of seminars (1 hour) conducted by a leading assistant and workshops (2 hours). The workshops will be conducted in the form of the developed tasks for self-resolution by students (studying literature; preparing a project, multimedia presentation, research report, abstract, speech at a conference).

Seminar topics:

1. What do we know?

SARS-CoV-2 pandemic in the epidemiological and clinical context.

2. What do we want to know? What can be done to ensure that the information obtained about SARS-CoV-2 is based on scientific evidence?

Formulating a topic and asking a question. Searching for professional literature on SARS-CoV-2 issues using databases, m.in MEDLINE, Scopus, Google Scholar: original papers, review papers,

meta-analyses. Using the ranking of scientific publications, including the assessment of the impact factor (IF). Critical analysis of research based on the research question, including interpretation of the results of epidemiological and clinical studies.
Subject of the exercises:
1. How to plan your own study on SARS-CoV-2?
- selection of research methods; - precise determination of the study time divided into stages
- study population, sampling;- research tool; constructing a questionnaire, method of distribution, pilotage
2. How do I raise funds to fund my research?
- Calculation of costs, search for possible sources of financing (university funds, grants, local government funds, sponsors).
- Writing an application to the bioethics committee
3. How to collect data correctly?
- data collection; the most common mistakes and methods of reducing them; - constructing databases; - ways of analyzing the results obtained
4. How do I publish the results of my study?
- Presenting research results – writing an article, publishing, posters, oral presentations.
- Scientific writing – stages of publication preparation. Review process. Journal selection.
- Preparation of abstract and manuscript.
5. Why is it important to communicate with the patient/public to effectively promote the latest scientific findings on SARS-CoV-2, including the results of my study? How to do it?
- Preparation of oral presentation; - Preparation of a press release; - Poster preparation
After completing the course, the student will
- know the environmental conditions that led to the SARS-CoV-2 epidemic,
- be able to interpret epidemiological data on infections with this virus taking into account the geographical range of its occurrence and determine the causes, symptoms, principles of diagnosis and therapeutic and preventive management in COVID-19 disease.
- have knowledge of social factors influencing population behavior in the era of the SARS-CoV-2 pandemic.
- be able to plan and conduct a scientific study based on a critical analysis of the medical literature and using the basics of evidence-based medicine.
Knowing and understanding the principles of health promotion, with particular emphasis on preventive measures in infectious diseases, he will be able to apply the obtained research results in practice to reduce the transmission of SARS-Co V-2 in the population.

Methods of education
The exercises will take place in groups of 5 people in the didactic room of the Department of Infectious Diseases / in the Medical Simulation Center CM UZ.
Consultations: information on the dates of the consultations will be placed on the website and the Collegium Medicum platform.

Learning outcomes and methods of verification

LEARNING OUTCOMES AND METHODS OF VERIFICATION Outcome description	**Outcome Symbols**	**Verification Mehtods**	**Form of activity**
Knows and understands the environmental and epidemiological conditions of the most common infectious diseases	E.W1	Activity during classes, discussion	seminar workshop

Knows and understands the epidemiology of virus infections, taking into account the geographical extent of their occurrence	C.W13	Activity during classes, discussion	seminar workshop
Knows and understands the causes, symptoms, principles of diagnosis and therapeutic and preventive management in viral diseases	E.W32	Activity during classes, discussion, presentation	seminar workshop
Knows and understands the social factors influencing health and disease behavior	D.W2	Activity during classes, discussion	seminar workshop
Knows and understands the principles of conducting scientific, observational and experimental studies	B.W29	Activity during classes, discussion	seminar workshop
Knows and understands the principles of health promotion, its tasks and main directions, with particular emphasis on knowledge of the role of elements of a healthy lifestyle	D.W14	Activity during classes, discussion, presentation	seminar workshop
Knows and understands the principles of evidence-based medicine	D.W23	Activity during classes, discussion, presentation, evaluation of skills	seminar workshop
Plans and performs scientific study, interprets its results and draws conclusions	B.U13	Activity during classes, discussion, report, presentation, evaluation of skills	workshop
Critically analyzes medical literature and draws conclusions	D.U17	Activity during classes, discussion, report, presentation, evaluation of skills	workshop

Assignment conditions

In cases of absence, the student should fill in the gaps in the form and date agreed with the lecturer, no later than one week before the end of the semester. Final exam: in writing (single-choice test, 60 closed questions).

Note: Due to the current epidemiological situation regarding the SARS-CoV-2 pandemic, it is reserved to introduce changes in the event. The clinic-based classes will not cover all the required material, students who depend on course notes alone will be handicapped. Studying and reading material from textbooks and monographs is essential to success.

Obtaining 60% of the points possible to obtain is a condition for passing the lectures. To pass the review test student must score more than 59% positive answers. When scores:

- 0% - 59% gets unsatisfactory (2.0) and fails the lectures test; 60% - 67% gets satisfactory (3.0); 68 % - 75% gets satisfactory plus (3.5); 76 % - 84 gets good (4.0); 85 % - 93% gets fairly good (4.5); - 94% - 100% gets very good (5.0).

Workshops: obtaining positive grades from all classes to be carried out as part of the program. The planning and conducting a simple scientific study and the interpretation of its results are also subject to final evaluation, as well as Critical Analysis of Scientific Literature.

The final grade is the arithmetic mean of the lectures and workshops. The results of the arithmetic mean are determined according to the principle: the mean of 3.0-3.24 is the final grade of 3.0; an

average of 3.25-3.74 is a final grade of 3.5; an average of 3.75-4.24 is a final grade of 4.0; an average of 4.25-4.74 is a final grade of 4.5; an average of 4.75-5.0 is a final score of 5.0.
A retake exam (second term of an exam) may be in the written or oral form (test or open task or oral exam).
Students will be allowed to make up missed first term of the final exam if, and only if, they are excused in advance by the course coordinator. Special consideration will be given in the case of unanticipated and excused emergencies such as accident, sudden serious illness, etc.
For students who passed second term of final exam (a make-up exam) final exam grade is calculated as an arithmetic mean of two grades.

Recommended reading

1. Supino P.G., Borer J.S. Principles of Research Methodology: A Guide for Clinical Investigators. Springer, NY, 2012.
2. Laake P., Benestad H, Olsen B. Research in Medical and Biological Sciences. Elsevier. 2015

Supplementary Literature

1. Kallestinova ED. How to write your first research paper. Yale J Biol Med. 2011; 84(3): 181-90.
2. Bourne PE. Ten simple rules for making good oral presentations. PLoS Comput Biol 2007;3(4):e77.

Sexology

Course name	**Sexology**
Course ID	12.9-WL-LEK-Sek
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	5
ECTS credits to win	1
Course type	Obligatory
Teaching language	English/Polish
Author of sylabus	Prof. dr hab. Zbigniew Izdebski dr Joanna Dec-Pietrowska

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade
Seminar	15	Credit with grade

Aim of the course

The aim of the course is for students to develop their knowledge of human sexuality and its components. Students will gain knowledge of the challenges, dilemmas facing contemporary sexology. After completing the course, they will be able to differentiate between such concepts as: sexual and gender identity, sexual orientation, sexual preference, sexual disorder, etc. They will obtain the knowledge on how to apply early diagnosis and brief intervention to a person with sexual problems, as well as gain basic knowledge on treatment methods for sexual dysfunctions.

Prerequisites

Knowledge of human biological and psychological development. Knowledge of anatomy and physiology.

Scope

1. Sexology as an interdisciplinary science. Basic terminology in sexology. Sexual rights. 2.The history of sexology in the world and in Poland. Methodological aspects of research on human sexuality. 3.Sexuality in the human life cycle. 4. Sexual health of Poles in the life cycle, research analysis. 5. The norm in relation to human sexuality. 6. The physiology of sexual reaction and response in women and men. 7. Sexual identity and gender identification. Transsexualism - diagnosis and therapy. 8. Psychosexual orientations. Issues of LGBT+. 9. Sexual activity and sexual preference. 10. The psychosexual development: norm and pathology. 11. Sexual disorders and dysfunctions of women and men - diagnosis, etiology, therapy. 12. Specificity of work with a sexological patient. Sexological interview and examination. 13. Sexual violence - diagnosis and therapy. 14. Sexuality of persons with disabilities. 15. Sexological counselling in various disease units.

Teaching methods

Panel discussion, group work, work with textbook, project method, multimedia presentations, case study, conversational lecture.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows and understands the basic psychological mechanisms of human functioning in health and in illness	D.W09	Descriptive tests and practical, discussion	Lecture Seminar
Student is able to consider in the therapeutic process subjective patient's needs and expectations resulting from socio-cultural circumstances;	D.U01	practical tests, discussion	Laboratory Seminar
Student knows and understands cultural, ethnic and national determinants of human behaviour	D.W19	discussion	Laboratory Seminar
Student knows and understands issues of human sexuality and basic disorders related to it.	E.W21	Descriptive tests,and practical discussion	Laboratory Seminar
Student can respect the rights of the patient	D.U15	practical test discussion	Lecture Seminar
Student is able to critically analysis of medical literature, including in English, and draw conclusions	D.U17	descriptive test	Lecture Seminar
Student is able to inform the patient about the aim, course and possible risks of the suggested diagnostic or therapeutic actions and obtain his/her informed consent to undertake these actions.	D.U06	practical test discussion	Lecture Seminar
Student knows and understands the process of formation of new specialisations within the discipline of scientific discipline - medical sciences and achievements of leading representatives of the Polish and world medicine	D.W22	test	Lecture Seminar
Student knows how to conduct a conversation with an adult patient, child and family with the using the technique of active listening and expressing empathy, as well as talk to the patient about his/her life situation	D.U05	Practical tests discussion	Lecture Seminar
Student is able to give advice on compliance with therapeutic recommendations and on pro-healthy lifestyle	D.U09	practical tests discussion	Lecture Seminar

Assignment conditions

Written/test single-choice colloquium. Obtaining min. 60% of correct answers is a condition for passing the course. The final grade is the average of grades from seminar and a written test/quiz in a single-choice format. The course allows one excused absence. In cases of absence, the student should make up the missing material within the time agreed with the lecturer and report on the course in which he/she was absent.

Percentage spreads relating to marks: 94-100% = 5,0 85-93% = 4,5 76-84% = 4,0 68-75% = 3,5 60-67% = 3,0 0-59% = 2,0
The regulations for passing conditions correspond to those for direct credit, subject to the possibility of change in the event of the need to be transferred to remote credit in the statutory time, before the start of the session. Other regulations not mentioned above are specified by the Rules and Regulations for Studies at the University of Zielona Góra University https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

Bancroft, J., Human Sexuality and its Problems, 2008
Lehmiller J.J., The Psychology of Human Sexuality, 2018
Naples N.A., Companion to Sexuality Studies, 2020
Yarber W.L., Sayad B.W., Human Sexuality: Diversity in Contemporary Society, 2021

Sociology of Medicine

Course name	Sociology of Medicine
Course ID	14.2-WL-LEK-SMed
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	2
ECTS credits to win	1
Course type	Obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. Maria Zielińska, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade

Aim of the course

The aim of teaching is to acquire knowledge about the basic concepts and categories of the sociology of health and disease, and the sociology of medicine; getting acquainted with the sociological theories of health and disease, including the theory of multiple causes of disease and the concept of a functional disease, i.e. a disease without a perceptible organic background. The aim is also to understand health and disease related behavior as an important part of social knowledge; learning about the relationship between the quality of life and the state of health; getting acquainted with the latest scientific achievements in defining new roles of a doctor in the field of contacts with patients and their family members, also in the context of the use of the Internet; gaining knowledge about the hospital environment as a total institution. The aim is to shape students' awareness of the humanization of medicine. During the lecture, issues of the medicalisation of social life as well as social contexts of medical problems such as, among others, euthanasia, abortion, transplantology, in vitro fertilization, will be discusse etc.

Prerequisites: No prerequisites

Scope

Lectures : Basic concepts and categories of health and disease sociology and medical sociology. Theories of disease causes; disease polyetiology-analytical epidemiology. Socio-cultural determinants of human behavior in various social. situations, especially in the case of illness and contact with a doctor. Socio-environmental and cultural determinants of health, disease and quality of life: globalization of health problems, social inequalities in access to health care institutions and medical achievements. Sociological and medical research on stress as a health risk factor. The essence of the phenomenon and measurement of the phenomenon on socio-medical scales. The doctor as a profession of social trust. "Dr. Google" - opportunities, possibilities and threats related to „knowledge” via the Internet. Medicalization of social life as a challenge of the 21st century. The COVID-19 pandemic and its social consequences.

Teaching methods

Lecture - multimedia presentation, discussion

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
social attitudes towards the importance of health, disease, disability and old age, social consequences of disease and disability, and socio-cultural barriers, as well as the concept of health-related quality of life;	D.W04	a final test	Lecture
cultural, ethnic and national determinants of human behavior;	D.W19	a final test	Lecture
rules and methods of communication with the patient and his family, which are used to build an empathetic, trust-based relationship;	D.W05	a final test	Lecture
the importance of verbal and non-verbal communication in the process of communicating with the patient. The concept of trust in interaction with the patient	D.W06	a final test	Lecture
functioning of the entities of the health care system and the social role of the doctor;	D.W08	a final test	Lecture
the role of stress in the etiopathogenesis and course of diseases and the mechanisms of coping with stress;	D.W12	a final test	Lecture
the role of the patient's family in the treatment process;	D.W10	a final test	Lecture
social factors influencing health and disease indywiduals behavior, especially in chronic disease;	D.W02	a final test	Lecture

Assignment conditions

The basis for passing is the final test, consisting of ten open-ended (text) questions. Point-percentage scale. Total points 30. For each question a maximum of 3 points. Score thresholds 15-18 points - satisfactory; 19-22 points - a sufficient plus; 23-26 points -good; 27-29 points - a good plus; 30 points - very good. Absences – 1 (one) excused absence is allowed, which the student should make up for in agreement with the teacher.

In any disputes regarding the credits, the student has the right to appeal to the Course Coordinator. The regulations on the conditions for passing a credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the necessity to switch to remote credit during the regulatory period, before the start of the session.

Other not mentioned regulations are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php/regulamin-studiow

Recommended reading

Health and Medicine", chapter 18 from the book Sociology: Comprehensive Edition: https://2012books.lardbucket.org/books/sociology-comprehensive-edition/s21-health-and-medicine.html

Strategies and types of gene therapy- elective course

Course name	**Strategies and types of gene therapy**
Course ID	12.9-WL-LekAM-SRTG
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	6
ECTS credits to win	1
Course type	Elective
Teaching language	English/Polish
Author of syllabus	dr hab. Katarzyna Baldy-Chudzik, prof. UZ
	dr n. biol. Ewa Bok

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Classes	15	Credit

Aim of the course

The aim of the course is to gain knowledge about the potential of gene therapy as a therapeutic method. Presentation of the technical aspects of genotherapy, mainly related to gene carriers and the effectiveness of their penetration into the cell, as well as the possibility of expression of the introduced gene.

Prerequisites

Completed molecular biology course.

Scope

1. An introduction to the subject. Explanation of the term "gene therapy". Assumptions of gene therapy. 2. Molecular cloning. From vector to construct. 3. Therapeutic nucleic acids - types.
4. Types of vectors used in gene therapy. 5. Methods of DNA transfer to the cell. 6. Clinical applications of gene therapy. 7. Ethical problems and safety of gene therapy.

Teaching methods

Classes in the form of multimedia presentations and discussions - adapted to face-to-face classes and the use of e-learning platforms

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student knows and understands the basic concepts of genetics	C.W01	a discussion an evaluation test	Classes
Student knows the function of nucleotides in the cell, the primary and secondary structures of DNA and RNA, and the structure of chromatin	B.W12	a discussion an evaluation test	Classes
Student knows and understands the functions of the human genome, transcriptome and proteome as well as the basic methods used in their study, the processes of DNA replication,	B.W14	a discussion an evaluation test	Classes

repair and recombination, transcription and translation, and degradation of DNA, RNA and proteins; knows the concepts of gene expression regulation			
Student knows how to use databases, including the Internet, and searches for the necessary information using the available tools	B.U10	a discussion an evaluation test	Classes

Assignment conditions

Pass based on attendance and participation in classes and summary test including single-choice test questions - positive grade from 60% of the points obtained. During the seminar classes, one excused absence is allowed (sick leave). Absences, in each case, must be made up for in the form of a written test or an oral answer covering the scope of the material for the classes, within the time limit agreed with the teacher.

Recommended reading

Nóbrega C, Mendonça L, Matos CA. A Handbook of Gene and Cell Therapy. Springer 2020.
Giacca M. Gene Therapy, Springer-Verlag Mailand, 2010.
Steffin DHM, Hsieh EM, Rouce RH. Gene Therapy: Current Applications and Future Possibilities. Adv Pediatr. 2019; 66:37-54.
Kerstin B Kaufmann, Hildegard Büning, Anne Galy, Axel Schambach, Manuel Grez. Gene therapy on the move. EMBO Mol Med. 2013; 5:1642–1661.

Surgery - Neurosurgery

Course name	Surgery - Neurosurgery
Course ID	ID 12.0-WL-LekAM-CHN
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	10
ECTS credits to win	3
Course type	Obligatory
Teaching language	English/Polish
Author of syllabus	dr n. med. Paweł Jarmużek, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Lecture	15	Credit with grade
Clinical classes	30	Credit with grade

Aim of the course

The aim of education is to learn about the most common diseases in neurosurgery, with the assessment of indications for surgical treatment. Understanding the principles of recognizing and managing a patient with increased intracranial pressure and in craniocerebral injuries, as well as qualifying neurological patients for surgery. To acquaint the student with the latest scientific achievements in neurosurgery. Learning the techniques of communicating with the patient and obtaining consent for surgical treatment. Acquisition by the student of the basic skills necessary to conduct clinical trials and to integrate clinical knowledge and skills with scientific evidence.

Prerequisites: Knowledge of anatomy, physiology, pathophysiology, pharmacology, surgical propaedeutics, pediatrics and internal medicine, pathomorphology, radiology, neurology.

Scope

Thematic scope of lectures and seminars:

1. Introduction to neurosurgery;
2. Craniocerebral, spine and spinal cord injuries.
3. Tumors of the central and peripheral nervous system,
4. Subarachnoid hemorrhage,
5. Surgical treatment of intracerebral haemorrhage and ischemic stroke.
6. Surgical treatment of aneurysms and arteriovenous malformations,
7. Back pain syndromes.
8. Physiology and circulatory disorders of the cerebrospinal fluid.
9. Treatment of hydrocephalus.
10. Swelling and wedging of the brain.
11. Diagnosis and treatment of increased intracranial pressure.
12. Neuronavigation and robotics in neurosurgery
13. Brain and spinal cord stimulators .
14. Stereotactic biopsy.
15. Imaging diagnostics in neurosurgery.
16. Diagnosis of brain death.
17. Communication with the patient and obtaining consent for surgical treatment

Thematic scope of clinical classes:

C1. To introduce students with the basic diseases of the nervous system requiring surgical treatment.
C2. Understanding the consequences of craniocerebral injuries, spine and peripheral nerves.
C3. Ability to use modern diagnostic imaging methods in diseases of the central nervous system and the spine.
C4. Acquainting students with the principles of diagnosis and treatment (operational and pharmacological) of intracranial hypertension and keeping the card neurosurgical supervision.
C5. Getting to know the most common complications after neurosurgical operations and the principles of recognizing brain death.

Teaching methods

Clinical classes conducted in 5-person groups at the department of neurosurgery and at the neurosurgical clinic, and the student's participation as an observer in neurosurgical operations in the operating theater. Seminars - with the use of discussion and problem method, with a case report.
Lectures are held in the form of multimedia presentations and can be carried out in the form of multimedia presentations, also with the use of an e-learning platform and / or an indicated Internet communicator.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
knows the rules of qualification and performance as well as the most common complications of basic surgical procedures and invasive diagnostic and therapeutic procedures	F.W03	a discussion a test an observation and evaluation of activities during the classes an ongoing monitoring during classes	Lecture Seminar Clinical classes
assesses the condition of the unconscious patient in accordance with the applicable international point scales;	F.U21	activity during the classes an observation and evaluation of activities during the classes an oral response	Lecture Seminar Clinical classes
recognizes the symptoms of increasing intracranial pressure	F.U22	activity during the classes an observation and evaluation of activities during the classes an oral response	Lecture Seminar Clinical classes
knows the principles of suspecting and recognizing brain death	F.W15	activity during the classes an observation and evaluation of activities during the classes an oral response	Lecture Seminar Clinicval classes

knows the problems of currently used imaging tests, in particular: a) radiological symptomatology of basic diseases, b) instrumental methods and imaging techniques used to perform medical procedures, c) indications, contraindications and preparation of patients for particular types of imaging tests and contraindications to the use of contrast agents	E.W10	activity during the classes an observation and evaluation of activities during the classes an oral response	Lecture Seminar Clinicval classes

Assignment conditions

The student makes up for the absences with another group or during the consultation hours with the teacher. There is a limit of two excused absences.

A justification with an appropriate document confirming the disease (sick leave) or a random accident should be presented to the teacher within 3 working days of the event.

Unexcused absences mean the inability to complete the course.

Consultation:

Information on the dates of consultations will be posted on the website and on the educational platform of the CM UZ. Practical learning outcomes are checked through the student's observation and ongoing control during classes.

Preparation for clinical classes and seminars verified orally or in writing by the teacher

Final pass in a test form. Obtaining 70% correct answers is required to pass the test. The student is admitted to the final test on the basis of completing the clinical course. Credits for classes are made by the teacher on the basis of attendance, activity in the classroom and observation of the teacher. The regulations on the conditions for passing a credit correspond to the conditions for direct credit, subject to the possibility of introducing changes in the event of the necessity to switch to remote credit during the statutory time, before the start of the session.

Recommended reading

1. Lindsay Kenneth W. i wsp. Neurologia i neurochirurgia. Wyd. Elsevier Urban & Partner Wrocław 2011

Further reading

1. Ząbek M. Zarys neurochirurgii. Wyd. Lekarskie PZWL Warszawa 1999
2. N. Boos, M. Aebi wyd. Polskie pod red. P. Jarmużek; Choroby kręgosłupa. Wyd. Medipage 2016
3. Journals available at the University Library of the University of Zielona Góra, digital databases - medical sciences and health sciences; http://www.bu.uz.zgora.pl/

Transplantology

Course name	Transplantology
Course ID	12.0-WL-LekAM-T
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	7
ECTS credits to win	1
Course type	Obligatory
Teaching language	English/Polish
Author of syllabus	Katarzyna Brzeźniakiewicz-Janus, MD, PhD, associate prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Seminar	5	Credit with grade
Lecture	5	Credit with grade

Aim of the course

Gaining basic knowledge by students on:

- legal conditions governing the principles of organ and cell procurement and transplantation in Poland; collection and transplant techniques of organs
- qualification of recipients of various organs; post-transplant care;
- qualification of recipient donor pairs for transplantation from the living
- the organization of a coordination system for the recognition of brain death
- Brain Death Committee research techniques
- immunosuppressive regimens for specific organs
- differences and similarities in the organization of the system in Poland and other countries
- factors determining the development of transplantology or inhibiting this development

Prerequisites

Knowledge of subjects related to:

Anatomy: structure and vascularization of transplanted organs - heart, lungs, liver, pancreas, kidney, intestine.

Physiology: function and importance of transplanted organs for human vital functions (as above) Diseases leading to failure of transplanted organs.

Subjects covered by medical studies to date: surgery, internal medicine, anatomy, physiology, pathophysiology, pathomorphology

Scope:

1. The Transplant Act as a legal act regulating the procurement and transplantation of organs and cells in Poland.
2. Coordination of organ donation and conditioning of multi-organ donation and donation of single organs.
3. Identification of indications for the transplant procedure with selection criteria and donor characteristics.
4. Analysis of the methods of promoting transplantology in Poland and educating the society on this subject, compared to other countries.
5. The importance of non-governmental organizations in promoting the idea of transplantation in Poland, with particular emphasis on the Polish Post-Transplant Sports Association.

6. Organization of organ and cell transplantation in Poland, taking into account the number of transplant centers and their location on the map of the country.
7. Methods of storing stem cells, tissues and organs and their influence on function after transplantation.
8. Organization of the qualification of patients for transplantation of stem cells, tissues and organs
9. Types and characteristics of stem cell, tissue and organ transplants
10. Immune response to allograft.
11. Mechanism of action of immunosuppressants
12. Induction of a state of tolerance in an allograft recipient.
13. Xenografts - the state of knowledge and prospects.
14. Taking tissues and organs from the deceased.
15. Living donation of stem cells, tissues and organs.
16. Ischemic organ damage - rules for storing organs.
17. Histocompatibility antigens - histocompatibility testing, cross testing, transplant procedure: indications and contraindicated for stem cells and vascularized organ transplantation; transplantation of stem cells, tissues and organs; principles of care in the immediate post-transplant period; monitoring the function of the transplant; immunosuppressive treatment; recognizing and treating the rejection process; specific organ complications
18. Long-term care after stem cells, tissues and organs transplantation
19. Stem cell transplantation and banking
20. Hematopoietic cell transplantation
21. Principles of prophylaxis and combating nosocomial infections and rational antibiotic therapy
22. Cytapheresis as a therapeutic method and obtaining material for stem cell transplantation
23. Infections in patients undergoing stem cell, tissue and organ transplantation. Principles of antibiotic prophylaxis / antibiotic therapy in the period of immunosuppression.
24. Long-term effects of stem cell, tissue and organ transplantation. Secondary neoplastic diseases in patients undergoing stem cell, tissue and organ transplantation.

Teaching methods: Seminars and lectures conducted in the form of multimedia presentations and discussions during classes

Learning outcomes and methods of theirs verification

Description of the effect	**Symbols effects**	**Verification methods**	**Form of assessment**
Knows the causes, symptoms, rules in therapeutic management in relation to the most common internal diseases occurring in adults and their complications;	E.W07	Control during classes; Activity during classes Discussion; test	Lecture Seminar
can recognize the ethical dimension of medical decisions and distinguish between factual and normative aspects	D.U14	Activity during classes; discussion test	Lecture Seminar
knows how to plan the proceedings diagnostic, therapeutic and prophylactic	E.U16	Control during classes; Activity during classes test	Lecture Seminar
Knows the main pattern of tissue compliance	C.W22	Activity during classes; discussion test	Lecture Seminar

knows the microarchitecture of tissues, extracellular matrix and organs	A.W05	Control during classes; Activity during classes	Lecture Seminar
knows the basic cell structure and their functional specializations	A.W04	Control during classes ;Activity during classes	Lecture Seminar
respects the patient's rights	D.U15	Control during classes; Activity during classes	Lecture Seminar
symptoms of iatrogenic infections, the way they spread and pathogens causing changes in individual organs	C.W18	Activity during classes;discussion test	Lecture Seminar
knows the basic directions of therapy development, in particular the possibilities of cell, gene and targeted therapy in specific diseases	C.W42	Control during classes; Activity during classes Discussion; test	Lecture Seminar
knows the basics of development and the mechanisms of the immune system, including specific and non-specific mechanisms of humoral and cellular immunity	C.W21	Control during classes; Activity during classes; test	Lecture Seminar
Knows the legal regulations and basic tansplant methods	G.W09	Control during classes; Activity during classes Discussion; test	Lecture Seminar
knows how to follow ethical patterns	D.U13	Control during classes	Lecture Seminar
knows how to inform the patient about the purpose, course and possible risk of the proposed diagnostic or therapeutic activities and obtain his informed consent to take these actions	D.U06	Control during classes; Activity during classes	Lecture Seminar
knows the main concepts, theories, ethical principles serving as a general framework for proper interpreting and analyzing moral and ethical issues	D.W16	Activity during classes; discussion ; test	Lecture Seminar
knows the rights of the patient	D.W17	Activity during classes; discussion test	Lecture Seminar
the impact of abiotic and biotic (viruses, bacteria) environmental factors on the human body and human population, and the up-take routes into the human body	C.W14	Activity during classes; discussion test	Lecture Seminar

in the scope of knowledge the student knows and understands basically , the problems of treatment in transplantology, indications for irreversibly damaged organ and tissue and procedures which are involved;	F.W14	Activity during classes; discussion test	Lecture Seminar
knows the principles of suspecting and recognizing brain death;	F.W15	Control during classes; discussion; test	Lecture Seminar
Know the basics of genetic selection of donor and recipient and the basics of immunology transplantation	C.W25	Control during classes; discussion; test	Lecture Seminar

Conditions of passing the assessments

The student's knowledge demonstrated during classes and observation skills, as well as combining facts and correct interpretation of events, including substantive preparation for classes, are checked orally during seminars and / or in writing form during the test. Completion of the lecture in the form of a test (single-choice test). The test grade depends on the% correct answers in the test and is as follows: 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0. Completion of the seminar is an assessment of the current activity in class and the assessment of the credit test (single-choice test). The test grade depends on the% correct answers in the test and is as follows: 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0

The final grade is the average of the grades obtained from all forms of education (lectures + seminars + exercises). From all the above mentioned results, the arithmetic mean is determined in accordance with the principle: mean 3.25 is the final grade of 3.5; mean 3.75 is the final score of 4.0; mean of 4.25 is the final score of 4.5; the mean of 4.75 is the final score of 5.0

The regulations on the conditions for crediting correspond to the conditions for direct crediting, subject to changes, if necessary switching to remote crediting during the regular time, before the start of the session.

Absence the student should fill in the deficiencies within the time limit agreed with the teacher. 1 excused absence is allowed.

Other not mentioned regulations are specified in the Study Regulations at the University of Zielona Góra https://www.uz.zgora.pl/index.php?regulamin-studiow

Basic literature

1. Cierpka L. Durlik M. Transplantologia Kliniczna Zasady Ogólne, Termedia, Poznań 2015
2. Cierpka L., Durlik M. Transplantologia Kliniczna Przeszczepy Narządowe, Termedia, Poznań 2015

Supplementary literature

1. Danovitch G. Podręcznik Transplantacji nerek. Wydawnictwo Czelej, 2006 2. Rowiński W., Wałaszewski J., Pączek L.
2. Transplantologia Kliniczna, PZWL 2004
3. Czasopisma dostępne w Bibliotece Uniwersyteckiej UZ, cyfrowe bazy danych – nauki medyczne i nauki o zdrowiu; http://www.bu.uz.zgora.pl/
4. Biuletyny POLTRANSPLANTU http://www poltransplant – publikacje

Urology- Surgery

Course name	Urology
Course ID	12.0-WL-LekAM-U
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	10
ECTS credits to win	3
Course type	Obligatory
Teaching language	English/Polish
Author of syllabus	dr hab. n. med. Maciej Salagierski, prof. UZ

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical classes	15	Credit with grade
Lecture	15	Credit with grade

Aim of the course

The aim of the course is to get the necessary knowledge of urological symptomatology and physical examination of urological patient. During the course, students will have the opportunity do see most of the standard urological procedures. Furthermore, the introduction to the evidence based medicine in urology, clinical aspects of medicine and clinical trials will be presented

Prerequisites: The general knowledge of anatomy, physiology and pathophysiology.

Scope

Symptomatology of urological diseases; Major urological procedures; Urinary tract infections; Stone disease; Urological cancers; Elementary aspects of uro-gynaecology; Diseases of the male genital organs; Prostatic disease; Elementary aspects of andrology; Erectile dysfunction; Urological emergencies; Urogenital trauma; Modern urological treatment options; Molecular diagnostics in urological cancers; Catheterisation and catheter types; Minimally invasive urological procedures i.e. RFA, MWA, HIFU

Teaching methods

Most of the teaching will be performed in small groups of students who will participate/assist both in urological procedures (operating theatre/endoscopic room) and outpatient department. The lectures will cover the aspects of general urology as multimedia presentations. The seminars will cover case presentations of major urological diseases. All students will have the opportunity to discuss urological care and treatment protocols with the teaching team.

Learning outcomes and methods of theirs verification

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Student is able to assess the clinical indication to suprapubic cystostomy and assist in the procedure	F.U23	a discussion a test	Lecture Class

general knowledge of antiseptics	F.U03	an observation and evaluation of the student's practical skills	Class
assist in standard urological procedures i.e. prostatic biopsy and in endoscopic interventions	F.U24	a discussion activity during the classes	Class
knows the methodology used in clinical trials and evidence based medicine	B.W27	a discussion	Lecture Class

Assignment conditions

Final exam from the course: The condition for admission to the examination is positive completion of the controlled classes. The final exam in urology will be written or oral covers the full range of the subject material (lectures, seminars etc.). The written exam consists of 50 multiple choice questions. To obtain a positive result of the exam, the student must obtain a minimum of 60% of points. The final score of 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5 60-67% = 3,0 0-59% = 2,0.

For further aspects and regulations, please see https://www.uz.zgora.pl/index.php

Recommended reading

Campbell-Walsh Urology 12th Edition Review, 2020 r.

Smith and Tanagho's General Urology, 19th Edition Paperback, 2020 r.

Bibliography available in the library of University of Zielona Góra http://www.bu.uz.zgora.pl/

Vascular Surgery

Course name	Vascular Surgery
Course ID	12.0-WL-LekAM-CHNe
Faculty	Collegium Medicum
Field of study	Medical for Erasmus program
Education profile	Academic
Level of studies	Long-cycle studies leading to MS degree (6 years)
Beginning semester	Winter term 2022/2023
Semester	9
ECTS credits to win	2
Course type	Obligatory
Teaching language	English/Polish
Author of syllabus	prof. dr hab. n. med. Łukasz Dzieciuchowicz

Classes forms

The class form	Hours per semester (full-time)	Form of assignment
Clinical practice	15	Credit
Lecture	15	Credit

Aim of the course

The main objective of the course is acquisition of basic knowledge of the etiology, prophylaxis, symptomatology and diagnostic of the most common vascular diseases together with assessment of the indications and possibilities of surgical treatment. The student will learn the basic principles of management of vascular emergencies and ambulatory treatment of vascular diseases. The student will be familiarized with the newest scientific achievement in vascular surgery. The student will acquire basic skills in conducting scientific research and integration of clinical skills and knowledge with scientific data.

Prerequisites

Basic knowledge of anatomy, physiology, pathology and pathophysiology of vascular diseases together with the basics of internal medicine and general surgery.

Scope

Lectures:

Lecture I. Basics of pathophysiology, risk factors and prophylaxis of vascular diseases. Symptomatology and clinical diagnostics of vascular diseases. Laboratory tests in vascular surgery. Surgical and endovascular methods of treatment of vascular diseases.

Lecture II. Acute limb ischemia. Chronic limb ischemia. Aortic and peripheral aneurysms. Acute aortic syndrome – dissection, intramural hematoma and penetrating aortic ulcer.

Lecture III. Stenosis and occlusion of extracranial cerebral arteries and arteries of upper extremity. Thoracic outlet syndrome and other vascular compression syndrome.

Lecture IV. Venous thromboembolism. Contemporary anticoagulation. Varicose veins and chronic venous insufficiency. Lymphatic disorders.

Lecture V. Vascular access for hemodialysis. Vascular trauma. Diagnosis and treatment of life-threatening vascular conditions.

Clinical practice

1. History-taking and physical exam in patient with peripheral vascular disease.
2. Proposing of preliminary diagnosis and further diagnostics
3. Interpretation of the results of laboratory tests and imaging studies.
4. Performing of continuous wave doppler exam and calculation of ankle-brachial index.

5. Assessment of the risk of venous thromboembolism and administration of antithrombotic prophylaxis
6. Proposing of final diagnosis and planning of treatment of the patient with peripheral vascular disease. Determination of urgency of treatment (emergent, urgent, or planned). Choice of the method of treatment (conservative or invasive, surgical or endovascular)
7. Preparation of the patient for the endovascular and surgical procedure.
8. Observing or assisting during the endovascular and surgical procedure.
9. Assessment of early results of treatment. Assessment of the wound healing.
10. Assisting in dressing changes.
11. Writing of medical progress notes.
12. Application of compression therapy
13. Writing of hospital discharge summary, proposing of post discharge recommendations, and planning of further treatment.

Teaching methods

Clinical practice in 5 persons groups in the Department of Vascular Surgery. A student participates in daily work in the ward and in an operating theater. Lectures in the form of multimedial presentations. Seminars in the form of multimedial presentations and discussions.

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Closes simple wound, applies and changes sterile surgical dressing	F.U04	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Inserts peripheral venous line	F.U05	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Knows the principles of currently used imaging studies, in particular: a) radiologic symptoms of common diseases, b) instrumental methods and imaging techniques used in therapeutic procedures, c) indications, contraindications and preparation of patients to different imaging studies and contraindication to administration contrast media	F.W10	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Manages an external bleeding	F.U09	a discussion activity during the classes	Lecture Seminar Clinical practise

		an observation and evaluation of activities during the classes	
Knows and understands causes, symptoms and signs and principles of diagnostics and therapy of the most frequent surgical diseases, vascular surgical diseases	F.W01	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Knows epidemiological and environmental aspects of vascular diseases	E.W01	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Knows the principles of perioperative safety, preparation of the patients for surgery, local anesthesia and controlled sedation	F.W04	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Handles basic surgical instruments	F.U02	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Knows the principles of qualification and of performing as well as the most frequent complications of basic surgical operations and invasive diagnostic and therapeutic procedures	F.W03	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Knows the postoperative treatment with analgesia and postoperative monitoring	F.W05	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Assists at the typical surgical procedures, prepares an operative field and applies local anesthesia to the operative field	F.U01	a discussion activity during the classes an observation and evaluation of activities during the classes	Lecture Seminar Clinical practise
Applies the rules of aseptic technique and antiseptics	F.U03	a discussion	Lecture Seminar

		activity during the classes an observation and evaluation of activities during the classes	Clinical practise

Assignment conditions

A student's preparation for the clinical practice and seminars will be verified in oral or written form by the academic teachers responsible for the clinical classes. Final exam will be in the form of multiple-choice question quiz. A minimum of 60% of correct answers is required to pass the exam. A student is allowed to take the final exam on the basis of his performance at clinical practice, seminars and lectures. The pass of clinical practice is based on attendance and active participation that will demonstrate student's knowledge and skills. Attendance to all clinical practice days is required. Gross lack of activity, knowledge and skills may result in failure to pass clinical practice. Absence must be made up for in the time agreed with the academic teacher responsible for the course.

Absence – two days of excused absence are allowed. Justification of absence must be presented to the academic teacher responsible for the course within three working days. Unexcused absence will result in failure to pass clinical practice.

Final grade is the grade from the final exam. The final exam is graded based on the percentage of correct answers as follows: 94-100% = 5,0; 85-93% = 4,5; 76-84% = 4,0; 68-75% = 3,5; 60-67% = 3,0; 0-59% = 2,0. There is a possibility to upgrade the final grade by 0,5 on the basis of excellent activity and knowledge and clinical skills demonstrated during clinical practice, seminars and lectures

Consultations: information about hours of consultation is presented on the website of Collegium Medicum

The other, not mentioned regulations are determined by the University of Zielona Góra rules https://www.uz.zgora.pl/index.php?regulamin-studiow

Recommended reading

1. Szmidt J, Kużdżał J(red.) Podstawy chirurgii. Wyd. Medycyna Praktyczna Kraków 2009
2. Grzegorz Oszkinis, Gustavo S. Oderich, Peter F. i wsp. Chirurgia naczyniowa i wewnątrznaczyniowa. Przegląd wiedzy. Elsevier 2019
3. Rutherford's Vascular Surgery and Endovascular Therapy, 2-Volume Set, Elsevier 2022