Course specification
Kafrelsheikh University
Faculty of Medicine
اعتماد توصيف مقررات الفرقة الثانية
Semester ٤

اعتمادات المجالس الحاكمة:

مجلس إدارة وحدة ضمان الجودة	**جلسة رقم (٢) بتاريخ ٢٠٢٤/٩/٣٠**
مجلس الكلية:	**جلسة رقم (٦١) بتاريخ ٢٠٢٤/١٠/٧**

الإعتمادات:

مدير وحدة ضمان الجودة

عميد الكلية

Course Specifications

CNS219

2025 /2026

1. Basic Information

Course Title	**Central nervous system and special sense**			
Course Code	**CNS219**			
Department/s participating in delivery of the course	**Medical Physiology Department** **Anatomy and embryology Department** **Histology and cell biology Department** **Medical Biochemistry Department**			
Number of credit points of the course = 7.5	**Theoretical**	**Practical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	3	1.5	3	7.5
Number of contact and non-contact hours of the course	**90**	**45**	**90**	225
Course Type	Obligatory			
Duration	5 weeks			
Academic level at which the course is taught	second year/4th semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Aliaa nmosaad			
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

This module provides an integrated study of the structure and function of the central nervous system (CNS) and special sense organs. It focuses on the anatomical organization, histological features, biochemical basis, and physiological mechanisms underlying neural activity and sensory perception. Through lectures, laboratory sessions, and case-based learning, students explore the neural pathways, higher brain functions, and sensory systems related to vision, hearing, balance, taste, and smell. The module emphasizes correlation between basic sciences and clinical relevance, fostering understanding of how normal neural and sensory functions are altered in disease.

3. Course Learning Outcomes (CLOs)

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

	Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes Upon completion of the course, the student will be able to:**
Code	**Text**	**Code**	**Text**
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	
		1.6.2	
1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in	1.9.1	

	order to help solve a clinical problem based on evidence (EBM)		
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	
1.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	

2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take the proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe the external and internal features of the spinal cord, including its enlargements, meninges, and gray/white matter organization.
		4.1.2	Identify the external features and subdivisions of the brainstem (midbrain, pons, medulla) and their anatomical relations.
		4.1.3	Describe the nuclei, tracts, and cranial nerve attachments of the medulla.
		4.1.4	Describe the surface anatomy and internal structures of the pons and their functional significance.

		4.1.5	Identify the major nuclei, tracts, and cranial nerve exits of the midbrain.
		4.1.6	Describe the lobes, surface features, nuclei, and connections of the cerebellum.
		4.1.7	explain the anatomical organization of the brainstem and cerebellum in relation to their major motor and sensory pathways.
		4.1.8	Describe the embryological development and organization of the central nervous system and correlate with congenital anomalies.
		4.1.9	Identify the microscopic structure and functions of neurons and neuroglial cells.
		4.1.10	Describe the histological organization of peripheral nerves, ganglia, and synapses.
		4.1.11	Identify histological features of gray and white matter in spinal cord sections.
		4.1.12	Describe the microscopic features of brainstem nuclei and cerebellar cortex layers.
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain the organization and general functional divisions of the central nervous system.
		4.2.2	Describe types, properties, and classifications of sensory receptors.
		4.2.3	Explain the mechanisms of tactile, pressure, vibration, and proprioceptive sensations.
		4.2.4	Describe pain pathways, types of pain, and mechanisms of pain modulation
		4.2.5	Explain the physiology of simple and complex spinal reflex arcs.
		4.2.6	Describe mechanisms of synaptic transmission and inhibition at synapses.
		4.2.7	Explain the physiological organization of motor systems including pyramidal and extrapyramidal tracts.
		4.2.8	Correlate the functional roles of basal ganglia and cerebellum in movement control.
		4.2.9	Describe the physiology of the vestibular system and its role in posture and balance.
		4.2.10	Explain hypothalamic regulation of autonomic and endocrine functions and role of limbic system in emotion
		4.2.11	Explain major pathways of brain energy metabolism and their regulation.
		4.2.12	Describe the role of sphingolipids in neuronal structure and function and their metabolic disorders.
		4.2.13	Identify the chemical nature, synthesis, and degradation of major neurotransmitters.
		4.2.14	Explain neurotransmitter receptor types and intracellular signaling mechanisms.
4.3	Recognize and describe main developmental changes in humans	4.3.1	

	and the effect of growth, development and aging on the individual and his family		
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Demonstrate the main pathways and blood supply of the brain and spinal cord using diagrams and prosected specimens.
		4.8.2	Demonstrate the organization and major structures of the brain and spinal cord using models and specimens.
		4.8.3	Demonstrate spinal reflexes and simple motor responses using standard physiological recording methods.
		4.8.4	Demonstrate sensory perception tests related to touch, temperature, and pain.
		4.8.5	Demonstrate the microscopic features of the cerebral cortex, cerebellum, and spinal cord using histological slides.
		4.8.6	Demonstrate the structural organization of peripheral nerves, receptors, and ganglia under the microscope.
		4.8.7	Demonstrate basic laboratory techniques for assessing neurotransmitter activity or enzyme function in neural tissue.
		4.8.8	Demonstrate the principle of biochemical tests related to brain metabolism and neural function.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	Recognize the collaborative role of various health professionals in managing neurological and neuromuscular disorders.
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Demonstrate respect, effective communication, and cooperation with peers and faculty during dissection, laboratory, and small-group learning activities.

5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	Apply teamwork and leadership skills in performing neurophysiological and histological practical sessions.
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	Reflect on personal performance during anatomy and physiology laboratory sessions and identify areas for improvement.
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	Use library and online resources to retrieve and evaluate recent scientific evidence about neuronal structure and function
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	

6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

1. Interactive Lectures
2. Tutorial classes
3. Practical classes
4. Directed self learning.
5. Case Discussion

Course Schedule

NO. of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected Number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	Training (practical)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	1. **Anatomy:** Organization and Development of the Central Nervous System	45	3	1.5	18 h (Home study, tasks, assignments)	
	2. **Physiology:** Functional Organization of the CNS and Neural Pathways		3	1.5		
	3. **Histology:** Ultrastructure of the Peripheral Nervous System (Receptors, Synapses, Ganglia)		3	1.5		
	4. **Anatomy:** External and Internal Features of the Spinal Cord		3	1.5		
	5. **Physiology:** Reflex Action and Spinal Reflex Physiology		3	1.5		
	6. **Histology:** Cross-Sectional Structure of the Spinal Cord at Different Levels		3	1.5		
2.	7. **Anatomy:** Brainstem Anatomy (Medulla, Pons, and Midbrain)	45	3	1.5	18 h (Home study, tasks, assignments)	
	8. **Physiology:** Sensory Receptors: Types, Properties, and Classifications		3	1.5	18 h (Home study, tasks,	

	9. **Biochemistry:** Neurotransmitters: Structure, Biosynthesis, and Signaling Pathways		**3**	**1.5**		
	10. **Anatomy:** Cranial Nerves and Their Lesions		**3**	**1.5**		
	11. **Physiology:** Somatic Sensations: Touch, Pressure, and Proprioception		**3**	**1.5**		
	12. **Histology:** Histological Features of Brainstem, Cerebral Cortex, and Cerebellum		**3**	**1.5**		
3.	13. **Anatomy:** Cerebellum and Basal Ganglia Anatomy	**45**	**3**	**1.5**	**assignments) 18 h (Home study, tasks, assignments)**	
	14. **Physiology:** Thermal and Pain Sensations: Transmission and Control Systems		**3**	**1.5**		
	15. **Biochemistry:** Brain Metabolism and Energy Utilization		**3**	**1.5**		
	16. **Anatomy:** Diencephalon and Limbic System		**3**	**1.5**		
	17. **Physiology:** Synaptic Transmission and Neural Integration		**3**	**1.5**		
	18. **Histology:** Brain Meninges and Blood–Brain Barrier		**3**	**1.5**		
4.	19. **Anatomy:** Blood Supply and Ventricular System of the Brain and Spinal Cord	**45**	**3**	**1.5**	**18 h (Home study, tasks, assignments)**	
	20. **Physiology:** Motor System: Cortical and Descending Pathways		**3**	**1.5**		
	21. **Biochemistry:** Sphingolipids and Their Role in Neural Function		**3**	**1.5**		
	22. **Anatomy:** Anatomy of the Orbit and Eye		**3**	**1.5**		
	23. **Physiology:** Motor Control: Basal Ganglia,		**3**	**1.5**		

	Cerebellum, and Muscle Tone					
	24. **Histology:** Microscopic Structure of the Cerebral Cortex and Cerebellum		**3**	**1.5**		
5.	25. **Anatomy:** Anatomy of the Ear and Vestibular Apparatus	**45**	**3**	**1.5**	**18 h (Home study, tasks, assignments)**	
	26. **Biochemistry:** Biochemical Basis of Neural Disorders and Neurodegeneration		**3**	**1.5**		
	27. revision		**3**	**1.5**		
	28. revision		**3**	**1.5**		
	29. revision		**3**	**1.5**		
	30. revision		**3**	**1.5**		
		225	**90**	**45**	**90**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1	Quiz (Semester work)	Third week	-	0
2	End Module exam	fifth Week	**22**	**20%**
3	Final Written Exam	16-20 Week	**45**	**40%**
4	Final practical Exam	fifth Week	**34**	**30%**
5	Assignments/Portfolio	Throughout the Module	**11**	**10%**
	Total		**112**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Drake, R. L., Vogl, W., & Mitchell, A. W. M. (2024). *Gray's Anatomy for Students* (5th ed.). Elsevier. Link: *Elsevier page for the 5th edition* — Gray's Anatomy for Students (Elsevier Health) • Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall Textbook of Medical Physiology* (14th ed.). Elsevier. Link: *Elsevier / Evolve* — Guyton & Hall Textbook of Medical Physiology (Evolve) • Junqueira, L. C., & Carneiro, J. (2023). *Junqueira's Basic Histology: Text and Atlas* (16th ed.). McGraw-Hill Education. • Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, V. W., & Weil, P. A. (2023). *Harper's Illustrated Biochemistry* (33rd ed.). McGraw-Hill Education. •

	Other References	• Abbas, A. K., Lichtman, A. H., & Pillai, S. (2023). *Cellular and Molecular Immunology* (11th ed.). Elsevier. •
	Electronic Sources (Links must be added)	1. **AccessMedicine – McGraw Hill Medical Library** *(for Harper's Biochemistry & Junqueira's Histology)* https://accessmedicine.mhmedical.com/ 2. **National Center for Biotechnology Information (NCBI) – Bookshelf** *(free access to physiology & biochemistry texts)* https://www.ncbi.nlm.nih.gov/books/ 3. **OpenStax – Anatomy and Physiology** *(free educational textbook resource)* https://openstax.org/details/books/anatomy-and-physiology 4. **Histology Guide – Virtual Microscopy Resource** *(for histology slides & structure identification)* https://www.histologyguide.com/ 5. **PubMed – Biomedical Literature Database** *(for updated scientific research in all related disciplines)* https://pubmed.ncbi.nlm.nih.gov/
	Learning Platforms (Links must be added)	1. Lecturio – Comprehensive video lectures and quizzes for medical sciences. https://www.lecturio.com/ 2. Visible Body – 3D interactive anatomy and physiology visualization. https://www.visiblebody.com/ 3. Kenhub – Interactive anatomy and histology tutorials with quizzes. https://www.kenhub.com/en/start 4. Labster – Virtual science labs for biochemistry and physiology experiments. https://www.labster.com/ 5. Osmosis – Integrated medical learning videos and flashcards. https://www.osmosis.org/
	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• Microscopes, prepared histology slides, anatomical models, spirometer, spectrophotometer
	Supplies	• histological stains and reagents, microscope slides and cover slips,, and practical record sheets.
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	

	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

مدير البرنامج	منسق المقرر
هاني برج	علياء مسعد
	

Course Specifications

REP220

2025 /2026

1. Basic Information

Course Title	**Reproductive system**			
Course Code	**REP220**			
Department/s participating in delivery of the course	**Medical Physiology Department** **Anatomy and embryology Department** **Histology and cell biology Department** **Medical Biochemistry Department**			
Number of credit points of the course = 4.5	**Theoretical**	**Practical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	1.8	0.9	1.8	4.5
Number of contact and non-contact hours of the course	**54**	**27**	**54**	135
Course Type	Obligatory			
Course duration	**(3 weeks)**			
Academic level at which the course is taught	Second year/4 semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Aya khairy			
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

This module provides an integrated study of the reproductive system, emphasizing the structural, functional, biochemical, and developmental aspects of both male and female reproductive organs.
It covers the gross and microscopic anatomy of the genital organs, perineum, and breast; the physiology of reproduction, including gametogenesis, hormonal regulation, menstrual cycle, fertilization, pregnancy, parturition, and lactation; the biochemical basis of reproductive hormones and feedback mechanisms; and the histological features of reproductive tissues such as testis, ovary, uterus, and placenta. The module also highlights the embryological development of the genital system and the changes associated with puberty, pregnancy, and aging, fostering understanding of the normal foundation for clinical reproductive health.

3. Course Learning Outcomes (CLOs)

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

	Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** **Upon completion of the course, the student will be able to:**
Code	**Text**	**Code**	**Text**
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	

1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	
.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	

2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	Discuss the role of **nutritional requirements during pregnancy and lactation** to fetal and maternal wellbeing.
		2.3.2	Discuss the **effect of malnutrition and obesity** on fertility and pregnancy outcomes
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	.
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	Demonstrate respect and ethical behavior when handling human specimens, models, and histological slides related to the reproductive system
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	Adhere to the professional standards when discussing sensitive reproductive topics, maintaining professionalism and cultural sensitivity
		3.2.2	Apply integrity and honesty in data collection, recording, and reporting of laboratory and practical results

3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe the development, gross structure, relations, and blood supply of the testis, epididymis, vas deferens, seminal vesicle, and prostate.
		4.1.2	Describe the development, structure, peritoneal relations, and vascular supply of the ovary, uterine tube, uterus, and vagina
		4.1.3	Describe the boundaries, contents, and muscular components of the perineum and their relevance to childbirth and continence.
		4.1.4	Describe the anatomy, contents, and clinical importance of the inguinal canal and its relation to hernias and the spermatic cord.
		4.1.5	Explain the gross structure, lymphatic drainage, and functional anatomy of the female breast related to lactation and breast disease.
		4.1.6	Explain the microscopic features of the testis, epididymis, and ductus deferens, and relate them to the processes of spermatogenesis and sperm maturation.
		4.1.7	Describe the cyclical histological changes in the ovary, uterine tube, and endometrium during the menstrual cycle.

		4.1.8	Identify the microscopic structure of the placenta and umbilical cord, explaining their role in fetal-maternal exchange.
		4.1.9	Describe the histological features of the vagina and mammary gland, correlating them with function and hormonal influence.
		4.1.10	Explain the processes of spermatogenesis, hormonal control (GnRH–LH–FSH–testosterone axis), and factors affecting male fertility.
		4.1.11	Describe the processes of oogenesis, ovulation, and menstrual cycle regulation, including hormonal feedback mechanisms.
		4.1.12	Explain the physiological adaptations during pregnancy, functions of the placenta, and mechanisms of labor and parturition.
		4.1.13	Describe the physiology of lactation, milk secretion and ejection, and hormonal changes during menopause.
		4.1.14	Explain the biosynthesis, metabolism, and molecular action of sex hormones (testosterone, estrogen, progesterone).
		4.1.15	Illustrate the biochemical feedback mechanisms regulating gonadal function through hypothalamic and pituitary hormones.
		4.1.16	Describe the biochemical roles of placental hormones (hCG, hPL, progesterone, estrogen) and metabolic changes during pregnancy and lactation
		4.1.17	Discuss the biochemical basis of gametogenesis, fertilization, and early embryonic development.
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain biochemical pathways regulating reproductive hormones (estrogen, progesterone, testosterone) and their roles in fertility and pregnancy.
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	Describe pubertal changes, menopause, and age-related reproductive alterations.
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and	4.5.1	Discuss hormonal imbalances leading to reproductive dysfunction (infertility, menstrual disorders).

	traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)		
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	label male and female reproductive organs on cadaveric specimens, models,
		4.8.2	Demonstrate the boundaries, muscles, and neurovascular components of the perineum and trace the inguinal canal contents on anatomical models.
		4.8.3	Demonstrate the ability to Illustrate anatomical structures in male reproductive organs models.
		4.8.4	Demonstrate the ability to identify microscopic structures of testis, epididymis, ovary, uterus, vagina, placenta, and mammary gland using histological slides
		4.8.5	Demonstrate the difference between proliferative and secretory phases of the endometrium based on histological appearance
		4.8.6	Demonstrate the ability to Use light microscopes to evaluate reproductive tissue architecture and correlate with function.
		4.8.7	Demonstrate interpretation of laboratory data of reproductive hormones (LH, FSH, estrogen, progesterone, testosterone, hCG) in relation to menstrual and reproductive physiology
		4.8.8	Demonstrate the ability to Analyze semen analysis parameters, basal body temperature, and ovulation tests to assess reproductive function
		4.8.9	Demonstrate the ability to use simulated data or charts to interpret changes during menstrual cycles, pregnancy, or lactation.

		4.8.10	show the ability to analyze results of biochemical assays for sex hormones (e.g., ELISA for estrogen/testosterone, hCG tests).
		4.8.11	Demonstrate the interpretation of enzyme activity data and feedback mechanisms regulating gonadal steroidogenesis
		4.8.12	show the ability to analyze biochemical bases and diagnostic significance of maternal serum markers (hCG, AFP, estriol) used in pregnancy screening
		4.8.13	show the ability to Integrate anatomical, histological, biochemical, and physiological findings to interpret reproductive system disorders (e.g., infertility, hormonal imbalance)
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	Recognize the integration of basic sciences with clinical disciplines in understanding reproductive health and disease.
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Respect colleagues in Participating in collaborative lab and small group activities, demonstrating respect and teamwork in reproductive system studies.
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	Assess performance during practical sessions and peer activities, applying feedback to improve learning.
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	

5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	Reflect on personal understanding of reproductive system physiology and anatomy during lab and discussion sessions.
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	Use histological slides, physiological simulations, and biochemical assays to enhance independent learning.
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	Analyze hormone level data and interpret reproductive function tests.
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

6. Interactive Lectures
7. Tutorial classes
8. Practical classes
9. Directed self learning.
10. Case Discussion

Course Schedule

NO. of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected Number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	Training (practical)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	1. **Anatomy:** Development of the genital system	45	3	1.5	18 h (Home study, tasks, assignments)	
	2. **Physiology:** Physiology of puberty		3	1.5		
	3. **Histology:** Histological structure of testis and epididymis		3	1.5		
	4. **Biochemistry:** Biochemistry of reproductive hormones		3	1.5		
	5. **Anatomy:** Male reproductive system		3	1.5		
	6. **Physiology:** Spermatogenesis and male reproductive function		3	1.5		
2.	7. **Histology:** Histological structure of ovary and vagina	45	3	1.5	18 h (Home study, tasks, assignments)	
	8. **Biochemistry:** Biochemistry of fertilization and early embryonic development		3	1.5	18 h (Home study, tasks,	
	9. **Anatomy:** Female reproductive system		3	1.5		
	10. **Physiology:** Ovarian and uterine cycles (oogenesis and menstruation)		3	1.5		
	11. **Anatomy:** Perineum and related structures		3	1.5		
	12. **Physiology:** Pregnancy, parturition, and lactation		3	1.5		
3.	13. **Anatomy:** Breast and its anatomical features	45	3	1.5	assignments) 18 h (Home study, tasks, assignments)	
	14. **Physiology:** Hormonal regulation (testosterone, estrogen, progesterone)		3	1.5		
	15. **Anatomy:** Anterior abdominal wall and inguinal canal		3	1.5		

	16. Revision		**3**	1.5		
	17. Revision		**3**	1.5		
	18. Revision		**3**	1.5		
		135	**54**	**27**	**54**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1	Quiz (Semester work)	Second week	-	0
2	End Module exam	Third Week	**14**	**20%**
3	Final Written Exam	16-20 Week	**28**	**40%**
4	Final practical Exam	Third Week	**20**	**30%**
5	Assignments/Portfolio	Throughout the Module	**6**	**10%**
	Total		**68**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Drake, R. L., Vogl, W., & Mitchell, A. W. M. (2024). *Gray's Anatomy for Students* (5th ed.). Elsevier. Link: *Elsevier page for the 5th edition* — Gray's Anatomy for Students (Elsevier Health) • Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall Textbook of Medical Physiology* (14th ed.). Elsevier. Link: *Elsevier / Evolve* — Guyton & Hall Textbook of Medical Physiology (Evolve) • Junqueira, L. C., & Carneiro, J. (2023). *Junqueira's Basic Histology: Text and Atlas* (16th ed.). McGraw-Hill Education. • Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, V. W., & Weil, P. A. (2023). *Harper's Illustrated Biochemistry* (33rd ed.). McGraw-Hill Education. •
	Other References	• Abbas, A. K., Lichtman, A. H., & Pillai, S. (2023). *Cellular and Molecular Immunology* (11th ed.). Elsevier. •
	Electronic Sources (Links must be added)	6. **AccessMedicine – McGraw Hill Medical Library** *(for Harper's Biochemistry & Junqueira's Histology)* https://accessmedicine.mhmedical.com/ 7. **National Center for Biotechnology Information (NCBI) – Bookshelf** *(free access to physiology & biochemistry texts)* https://www.ncbi.nlm.nih.gov/books/

		8. **OpenStax – Anatomy and Physiology** *(free educational textbook resource)* https://openstax.org/details/books/anatomy-and-physiology 9. **Histology Guide – Virtual Microscopy Resource** *(for histology slides & structure identification)* https://www.histologyguide.com/ 10. **PubMed – Biomedical Literature Database** *(for updated scientific research in all related disciplines)* https://pubmed.ncbi.nlm.nih.gov/
	Learning Platforms (Links must be added)	6. Lecturio – Comprehensive video lectures and quizzes for medical sciences. https://www.lecturio.com/ 7. Visible Body – 3D interactive anatomy and physiology visualization. https://www.visiblebody.com/ 8. Kenhub – Interactive anatomy and histology tutorials with quizzes. https://www.kenhub.com/en/start 9. Labster – Virtual science labs for biochemistry and physiology experiments. https://www.labster.com/ 10. Osmosis – Integrated medical learning videos and flashcards. https://www.osmosis.org/
	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• Microscopes, prepared histology slides, anatomical models, spirometer, spectrophotometer
	Supplies	• histological stains and reagents, microscope slides and cover slips,, and practical record sheets.
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

منسق المقرر	مدير البرنامج
اية خيري	هاني برج

Course Specifications

REU221

2025 /2026

1. Basic Information

Course Title	**Renal and urinary system**			
Course Code	**REU221**			
Department/s participating in delivery of the course	**Medical Physiology Department** **Anatomy and embryology Department** **Histology and cell biology Department** **Medical Biochemistry Department**			
Number of credit points of the course = 4.5	**Theoretical**	**Practical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	1.8	0.9	1.8	4.5
Number of contact and non-contact hours of the course	**54**	**27**	**54**	135
Course duration	3 weeks			
Course Type	Obligatory			
Academic level at which the course is taught	Second year/2nd semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Ghad waghi			
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

The module aims to provide students with an integrated understanding of the structure, function, development, and biochemical processes of the renal and urinary systems. It enables students to correlate the anatomical organization and microscopic features with the physiological mechanisms of urine formation, fluid and electrolyte balance, and acid-base regulation. Students will also learn the biochemical basis of renal function tests and disorders, forming a foundation for future clinical application and problem-solving in renal diseases.

3. Course Learning Outcomes (CLOs)

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

	Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** **Upon completion of the course, the student will be able to:**
Code	**Text**	**Code**	
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	Interpret renal function tests (BUN, creatinine, uric acid, electrolytes) and urinalysis results in relation to kidney physiology.
1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Apply integrated knowledge of renal anatomy, physiology, histology, and biochemistry to explain mechanisms of urine formation and renal disorders.
1.9	Retrieve, analyze, and evaluate relevant and current data from	1.9.1	

	literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)		
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	
.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	Identify renal health , hydration, nutrition, and prevention of nephrotoxic exposure
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	Discuss the impact of diet, salt intake, and protein consumption on kidney function and electrolyte balance.

		2.3.2	
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	Describe preventive strategies for renal stones, hypertension, and chronic kidney disease.
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	Demonstrate respect for privacy and sensitivity when discussing urinary and reproductive health issues.
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	

3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe the gross anatomy, relations, and blood supply of the kidneys, ureters, urinary bladder, and urethra
		4.1.2	Describe the posterior abdominal wall muscles, vessels, and nerves related to the urinary system.
		4.1.3	Describe the fascial coverings and perinephric spaces of the kidneys.
		4.1.4	Describe the development of the urinary system including kidney ascent and ureteric bud formation.
		4.1.5	Describe the pelvic fascia, peritoneum, and neurovascular relations relevant to bladder and urethral control
		4.1.6	explain the histological structure of the nephron and correlate it with its function.
		4.1.7	explain difference between cortical and juxtamedullary nephrons.
		4.1.8	Describe the histological structure of ureter, urinary bladder, and urethra.
		4.1.9	Explain microscopic differences in proximal, distal tubules, and collecting ducts.
		4.1.10	Recognize histological changes in proteinuria and renal pathology slides.
		4.1.11	Explain the process of glomerular filtration and factors affecting GFR.
		4.1.12	Describe tubular reabsorption, secretion, and countercurrent mechanisms.
		4.1.13	Explain renal regulation of water, sodium, potassium, and calcium balance.
		4.1.14	Discuss the role of the kidney in acid-base balance.
		4.1.15	Explain the process of micturition and neural control of bladder function.
		4.1.16	Describe biochemical parameters used in renal function assessment (creatinine, urea, uric acid)
		4.1.17	Explain metabolism and excretion of nitrogenous waste.
		4.1.18	Discuss acid-base regulation at the biochemical level (bicarbonate buffer system).

		4.19	Explain the biochemical basis of electrolyte regulation and osmoregulation.
		4.1.20	Describe metabolic derangements in renal failure (uremia, acidosis).
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain the integrated roles of kidney, lungs, and buffer systems in maintaining acid-base and fluid balance.
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	Describe the embryological development of kidneys, ureters, bladder, and congenital anomalies (e.g., horseshoe kidney).
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	show the ability to identify kidneys, ureters, bladder, and urethra on cadaveric specimens and anatomical models.
		4.8.2	show the ability to identify renal vessels and blood flow in dissection or digital anatomy.
		4.8.3	show the ability to identify examine histological slides of nephrons, renal corpuscles, and urinary passages under light microscope
		4.8.4	Correlate histological features with nephron segment function
		4.8.5	Demonstrate the interpretation of renal function test results (BUN, creatinine, urinalysis).
		4.8.6	Perform basic interpretation of electrolyte charts and acid-base balance data.

		4.8.7	Demonstrate practical understanding of micturition reflex.
		4.8.9	Demonstrate interpretation of urine output, specific gravity, and osmolarity to assess renal function in experimental or simulated settings.
		4.8.10	Apply principles of glomerular filtration rate (GFR) and renal clearance by performing calculations and interpreting results from practical exercises or case simulations.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Collaborate effectively in group dissections, lab sessions, and physiological demonstrations.
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	Reflect on lab reports and practical skill assessments to improve learning outcomes.
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various	6.1.1	

	performance indicators and information sources		
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	Analyze numerical data related to GFR, creatinine clearance, and electrolyte balance.
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	Present findings from renal physiology experiments or biochemical assays in group discussions or reports.

4. Teaching and Learning Methods

11. Interactive Lectures
12. Tutorial classes
13. Practical classes
14. Directed self learning.
15. Case Discussion

Course Schedule

NO. of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected Number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ .....)	Training (practical)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	19. **Anatomy:** Gross anatomy of the kidney	**45**	**3**	**1.5**	**18 h**	

	and posterior abdominal wall				**(Home study, tasks, assignments)**	
	20. Histology: Microscopic structure of the nephron and renal tubules		**3**	1.5		
	21. Anatomy: Development of the urinary system (I)		**3**	1.5		
	22. Anatomy: Development of the urinary system (II) and congenital anomalies		**3**	1.5		
	23. Anatomy: Structure and innervation of ureter, bladder, and urethra		**3**	1.5		
	24. Histology: Microscopic structure of the urinary bladder and ureter		**3**	1.5		
2.	**25. Physiology:** Glomerular filtration and regulation of glomerular filtration rate (GFR)	**45**	**3**	1.5	**18 h (Home study, tasks, assignments)**	
	26. Physiology: Tubular reabsorption and secretion mechanisms		**3**	1.5	**18 h (Home study, tasks,**	
	27. Physiology: Concentration and dilution of urine		**3**	1.5		
	28. Physiology: Role of the kidney in acid-base balance		**3**	1.5		
	29. Physiology: Micturition reflex and neural control of urination		**3**	1.5		
	30. Biochemistry: Biochemical parameters of renal function assessment		**3**	1.5		
3.	**31. Biochemistry:** Protein turnover and plasma proteins in renal function	**45**	**3**	1.5	**assignments) 18 h (Home study, tasks, assignments)**	
	32. Biochemistry: Uric acid and purine metabolism		**3**	1.5		
	33. Metabolic acidosis and alkalosis – renal compensation		**3**	1.5		
	34. Revision		**3**	1.5		
	35. Revision		**3**	1.5		
	36. Revision		**3**	1.5		
		135	**54**	**27**	**54**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1)	Quiz	Second week	-	0
2)	End Module exam	Third Week	**14**	**20%**
3)	Final Written Exam	16-20 Week	**28**	**40%**
4)	Final practical Exam	Third Week	**20**	**30%**
5)	Assignments/Portfolio	Throughout the Module	**6**	**10%**
	Total		**68**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Drake, R. L., Vogl, W., & Mitchell, A. W. M. (2024). *Gray's Anatomy for Students* (5th ed.). Elsevier. Link: *Elsevier page for the 5th edition* — Gray's Anatomy for Students (Elsevier Health) • Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall Textbook of Medical Physiology* (14th ed.). Elsevier. Link: *Elsevier / Evolve* — Guyton & Hall Textbook of Medical Physiology (Evolve) • Junqueira, L. C., & Carneiro, J. (2023). *Junqueira's Basic Histology: Text and Atlas* (16th ed.). McGraw-Hill Education. • Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, V. W., & Weil, P. A. (2023). *Harper's Illustrated Biochemistry* (33rd ed.). McGraw-Hill Education. •
	Other References	• Abbas, A. K., Lichtman, A. H., & Pillai, S. (2023). *Cellular and Molecular Immunology* (11th ed.). Elsevier. •
	Electronic Sources (Links must be added)	11. **AccessMedicine – McGraw Hill Medical Library** *(for Harper's Biochemistry & Junqueira's Histology)* https://accessmedicine.mhmedical.com/ 12. **National Center for Biotechnology Information (NCBI) – Bookshelf** *(free access to physiology & biochemistry texts)* https://www.ncbi.nlm.nih.gov/books/ 13. **OpenStax – Anatomy and Physiology** *(free educational textbook resource)* https://openstax.org/details/books/anatomy-and-physiology

		14. **Histology Guide – Virtual Microscopy Resource** *(for histology slides & structure identification)* https://www.histologyguide.com/ 15. **PubMed – Biomedical Literature Database** *(for updated scientific research in all related disciplines)* https://pubmed.ncbi.nlm.nih.gov/
	Learning Platforms (Links must be added)	11. Lecturio – Comprehensive video lectures and quizzes for medical sciences. https://www.lecturio.com/ 12. Visible Body – 3D interactive anatomy and physiology visualization. https://www.visiblebody.com/ 13. Kenhub – Interactive anatomy and histology tutorials with quizzes. https://www.kenhub.com/en/start 14. Labster – Virtual science labs for biochemistry and physiology experiments. https://www.labster.com/ 15. Osmosis – Integrated medical learning videos and flashcards. https://www.osmosis.org/
	Other (to be mentioned)	
Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	• Microscopes, prepared histology slides, anatomical models, spirometer, spectrophotometer
	Supplies	• histological stains and reagents, microscope slides and cover slips,, and practical record sheets.
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

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Course Specifications

END222

2025 /2026

1. Basic Information

Course Title	**Endocrine system**			
Course Code	**END222**			
Department/s participating in delivery of the course	**Medical Physiology Department** **Anatomy and embryology Department** **Histology and cell biology Department** **Medical Biochemistry Department**			
Number of credit points of the course = 4.5	**Theoretical**	**Practical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	1.8	0.9	1.8	4.5
Number of contact and non-contact hours of the course	**54**	**27**	**54**	135
Course duration	3 weeks			
Course Type	Obligatory			
Academic level at which the course is taught	Second year/2nd semester			
Academic Program	M.B. Ch.B. 5+2 Program (credit points)			
Faculty	Kafrelsheikh Faculty of Medicine			
University	Kafrelsheikh University			
Name of Course Coordinator	Katrin nabil			
Course Specification Approval Date	7/10/2024			
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**				

2. Course Overview (Brief summary of scientific content)

This course provides an integrated study of the endocrine system, focusing on the structure, function, and regulation of major endocrine glands. It covers the anatomy and development of glands such as the pituitary, thyroid, parathyroid, pancreas, and adrenal glands; the histological features of their secretory cells; and the physiological mechanisms controlling hormone secretion and action. The biochemical aspects emphasize hormone synthesis, signaling pathways, and metabolic regulation. Through this multidisciplinary approach, students gain a comprehensive understanding of how the endocrine system maintains body homeostasis and the basis of common endocrine disorders.

3. Course Learning Outcomes (CLOs)

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

	Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** **Upon completion of the course, the student will be able to:**
Code	**Text**	**Code**	
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	Demonstrate empathy and understanding toward patients with chronic hormonal disorders such as diabetes or hypothyroidism.
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	interpret hormonal assay data (TSH, T3, T4, cortisol, insulin, GH, ACTH) with glandular function
1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Apply knowledge of anatomical, physiological, histological, and biochemical concepts to explain

			mechanisms of hormone secretion, regulation, and endocrine dysfunction.
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	Integrate the results of laboratory and clinical data to differentiate between hyper- and hypo-function of endocrine glands.
.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	Identify the role of nutrition, iodine intake, and lifestyle in maintaining endocrine health.

2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	Discuss the role of obesity, malnutrition, and sedentary lifestyle to hormonal imbalance and insulin resistance.
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	Show professionalism, confidentiality, and sensitivity when discussing endocrine and reproductive issues.
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	Demonstrate honesty and ethical behavior in laboratory reporting and data interpretation.
		3.2.2	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	Respect cultural perspectives toward endocrine and metabolic disorders, such as obesity and infertility.
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	

3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe the anatomy and development of the pituitary gland, its location, relations, and blood supply.
		4.1.2	Describe the anatomy of the thyroid, parathyroid, pancreas, and suprarenal glands including their vascular and neural supply.
		4.1.3	Identify the anatomy of the anterior triangle of the neck and its relevance to thyroid surgery.
		4.1.4	Describe the anatomy of the middle cranial fossa and dural relations of the pituitary gland
		4.1.5	Identify the histological structure of the thyroid and parathyroid glands, including the follicular and parafollicular cells and their secretory roles
		4.1.6	Describe the histology of the pituitary gland and differentiate between its anterior and posterior parts.
		4.1.7	Describe the histological features of the adrenal cortex and medulla, correlating them with hormone production.
		4.1.8	Describe the histological structure of the endocrine pancreas (Islets of Langerhans) and cell types (α, β, δ).
		4.1.9	Explain the physiology of hormone synthesis, secretion, and control by feedback mechanisms.
		4.1.10	Describe the physiology of the hypothalamic-pituitary axis and its control of endocrine glands.
		4.1.11	Explain the physiology of growth hormone secretion and disorders such as gigantism and acromegaly.
		4.1.12	Describe the physiology of thyroid hormone synthesis, control, and actions
		4.1.13	Explain the physiology of calcium homeostasis and the role of parathyroid hormone and calcitonin.
		4.1.14	Explain the physiology of adrenal cortical hormones and their regulation by ACTH

		4.1.15	Describe the physiology of pancreatic hormones (insulin, glucagon) and their role in glucose homeostasis.
		4.1.16	Discuss the biochemistry of hormone synthesis (peptide, steroid, and amine hormones).
		4.1.17	Explain biochemical signaling pathways of water-soluble and lipid-soluble hormones
		4.1.18	Explain the biochemical basis of common endocrine disorders (diabetes mellitus, hyperthyroidism, Cushing's)
		4.1.19	Integrate anatomy, histology, physiology, and biochemistry to understand the normal and abnormal function of endocrine glands.
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain the molecular feedback regulation of the hypothalamic-pituitary-target gland axes.
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	Discuss hormonal imbalances such as hypo/hyperthyroidism, adrenal insufficiency, and diabetes mellitus.
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Demonstrate the Identification of endocrine glands in anatomical models and cadaveric specimens.
		4.8.2	Demonstrate the ability to Examine histological slides of pituitary, thyroid, parathyroid, pancreas, and adrenal glands.

		4.8.3	Demonstrate the difference between endocrine and exocrine pancreas under the microscope.
		4.8.4	show the ability to analyze hormone assay results (TSH, T3, cortisol, insulin).
		4.8.5	show the ability to analyze blood glucose and calcium data to assess endocrine function
		4.8.6	Demonstrate the ability to use physiological charts or digital simulations.
		4.8.7	show the ability to analyze biochemical findings with clinical manifestations of endocrine disorders
		4.8.8	Demonstrate the interpretation of physiological charts showing hormonal feedback loops such as hypothalamic–pituitary–thyroid and hypothalamic–pituitary–adrenal axes.
		4.8.9	show the ability to analyze physiological data from hormone assays (e.g., cortisol, insulin, or TSH) to assess normal and abnormal endocrine function.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	Appreciate multidisciplinary collaboration in diagnosis and management of endocrine diseases.
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Participate effectively in group anatomy dissections and physiology experiments related to endocrine topics.
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	Reflect on lab reports and feedback to enhance performance in endocrine practical sessions
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	

5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	Review and assess understanding of endocrine structure-function relationships.
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	Use histological slides, biochemical assays, for independent study
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	Calculate and interpret hormone level data and feedback relationships in endocrine axes.
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	Present laboratory or literature findings on endocrine physiology

4. Teaching and Learning Methods

16. Interactive Lectures
17. Tutorial classes
18. Practical classes
19. Directed self learning.
20. Case Discussion

Course Schedule

NO.		Total	Expected Number of the Learning Hours

of the Week	Scientific content of the course (Course Topics)	Weekly Hours	Theoretical teaching (lectures/discussion groups/ .....)	Training (practical)	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	37. **Anatomy:** Anterior Triangle of the Neck and Relations of the Thyroid Gland	45	3	1.5	18 h (Home study, tasks, assignments)	
	38. **Physiology:** Introduction to Endocrinology and Mechanisms of Hormonal Action		3	1.5		
	39. **Anatomy:** Development and Gross Anatomy of the Pituitary Gland		3	1.5		
	40. **Physiology:** Pituitary Gland – Hormones, Regulation, and Disorders		3	1.5		
	41. **Histology:** Microscopic Structure of the Pituitary Gland (Adeno- & Neurohypophysis)		3	1.5		
	42. **Physiology:** Thyroid Gland – Synthesis, Secretion, and Functions of Thyroid Hormones		3	1.5		
2.	43. **Anatomy:** Anatomy and Development of the Thyroid and Parathyroid Glands	45	3	1.5	18 h (Home study, tasks, assignments) 18 h (Home study, tasks,	
	44. **Biochemistry:** Mechanism of Action of Water- and Lipid-Soluble Hormones		3	1.5		
	45. **Anatomy:** Anatomy and Development of the Pancreas and Suprarenal (Adrenal) Glands		3	1.5		
	46. **Physiology:** Adrenal Cortex and Medulla – Hormones, Functions, and Regulation		3	1.5		
	47. **Histology:** Microscopic Structure of Thyroid and Parathyroid Glands		3	1.5		
	48. **Physiology:** Endocrine Pancreas – Insulin,		3	1.5		

	Glucagon, and Blood Glucose Regulation					
3.	**49. Biochemistry:** Biosynthesis and Regulation of Thyroid and Adrenal Hormones	**45**	**3**	1.5	**assignments) 18 h (Home study, tasks, assignments)**	
	50. Histology: Structure of the Endocrine Pancreas (Islets of Langerhans)		**3**	1.5		
	51. Biochemistry: Biochemical Basis of Glucose Homeostasis and Diabetes Mellitus		**3**	1.5		
	52. Revision		**3**	1.5		
	53. Revision		**3**	1.5		
	54. Revision		**3**	1.5		
		135	**54**	**27**	**54**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1)	Quiz (Semester work)	Second week	-	0
2)	End Module exam	Third Week	**14**	**20%**
3)	Final Written Exam	16-20 Week	**28**	**40%**
4)	Final practical Exam	Third Week	**20**	**30%**
5)	Assignments/Portfolio	Throughout the Module	**6**	**10%**
	Total		**68**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Drake, R. L., Vogl, W., & Mitchell, A. W. M. (2024). *Gray's Anatomy for Students* (5th ed.). Elsevier. Link: *Elsevier page for the 5th edition* — Gray's Anatomy for Students (Elsevier Health) • Hall, J. E., & Hall, M. E. (2020). *Guyton and Hall Textbook of Medical Physiology* (14th ed.). Elsevier. Link: *Elsevier / Evolve* — Guyton & Hall Textbook of Medical Physiology (Evolve) • Junqueira, L. C., & Carneiro, J. (2023). *Junqueira's Basic Histology: Text and Atlas* (16th ed.). McGraw-Hill Education.

		• Murray, R. K., Bender, D. A., Botham, K. M., Kennelly, P. J., Rodwell, V. W., & Weil, P. A. (2023). *Harper's Illustrated Biochemistry* (33rd ed.). McGraw-Hill Education. •
	Other References	• Abbas, A. K., Lichtman, A. H., & Pillai, S. (2023). *Cellular and Molecular Immunology* (11th ed.). Elsevier. •
	Electronic Sources (Links must be added)	16. **AccessMedicine – McGraw Hill Medical Library** *(for Harper's Biochemistry & Junqueira's Histology)* https://accessmedicine.mhmedical.com/ 17. **National Center for Biotechnology Information (NCBI) – Bookshelf** *(free access to physiology & biochemistry texts)* https://www.ncbi.nlm.nih.gov/books/ 18. **OpenStax – Anatomy and Physiology** *(free educational textbook resource)* https://openstax.org/details/books/anatomy-and-physiology 19. **Histology Guide – Virtual Microscopy Resource** *(for histology slides & structure identification)* https://www.histologyguide.com/ 20. **PubMed – Biomedical Literature Database** *(for updated scientific research in all related disciplines)* https://pubmed.ncbi.nlm.nih.gov/
	Learning Platforms (Links must be added)	16. Lecturio – Comprehensive video lectures and quizzes for medical sciences. https://www.lecturio.com/ 17. Visible Body – 3D interactive anatomy and physiology visualization. https://www.visiblebody.com/ 18. Kenhub – Interactive anatomy and histology tutorials with quizzes. https://www.kenhub.com/en/start 19. Labster – Virtual science labs for biochemistry and physiology experiments. https://www.labster.com/ 20. Osmosis – Integrated medical learning videos and flashcards. https://www.osmosis.org/
	Other (to be mentioned)	
Supportive facilities &	**Devices/Instruments**	• Microscopes, prepared histology slides, anatomical models, spirometer, spectrophotometer

equipment for teaching and learning *	**Supplies**	• histological stains and reagents, microscope slides and cover slips,, and practical record sheets.
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

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Course Specifications

CMP223

2025 /2026

1. Basic Information

Course Title	**Community medicine and public health**				
Course Code	CMP223				
Department/s participating in delivery of the course	**Community medicine and public health**				
Number of credit points of the course = 3	**Theoretical**	**Practical**	Field visit	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
	1.2	0.3	0.3	1.2	3
Number of contact and non-contact hours of the course	**36**	**9**	**9**	**36**	90
Course duration	2 weeks				
Course Type	Obligatory				
Academic level at which the course is taught	Second year/4th semester				
Academic Program	M.B. Ch.B. 5+2 Program (credit points)				
Faculty	Kafrelsheikh Faculty of Medicine				
University	Kafrelsheikh University				
Name of Course Coordinator	Eman gamal				
Course Specification Approval Date	7/10/2024				
Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)					

2. Course Overview (Brief summary of scientific content)

This module introduces students to the basic principles of Community Medicine and Public Health, emphasizing the relationship between health and its social, environmental, and behavioral determinants. It focuses on the concept of health and disease, disease prevention and health promotion, and the organization of health services at community and national levels. Students learn the principles of epidemiology, modes of disease transmission, and methods of prevention and control of communicable and non-communicable diseases. The module also highlights the role of health education, nutrition, environmental sanitation, and primary health care in improving community well-being. Practical sessions develop students' ability to interpret epidemiological data, identify risk factors, and apply preventive strategies in real-life health situations. A field visit is incorporated to expose students to the practical aspects of community health work, where they observe public health programs, participate in data collection and health education activities, and gain insight into the functioning of primary health care facilities and disease prevention programs.

3. Course Learning Outcomes (CLOs)

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

	Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes Upon completion of the course, the student will be able to:**
Code	**Text**	**Code**	
1.1	Take and record a structured, patient centered history	1.1.1	
1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	Demonstrate empathy and understanding of social and cultural determinants of health during community interactions.
1.3	Assess the mental state of the patient	1.3.1	
1.4	Perform appropriately-timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
		1.5.2	
		1.5.3	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	Interpret epidemiological and biostatistical data related to disease incidence, prevalence, and risk factors.
1.7	Recognize and respond to the complexity, uncertainty, and	1.7.1	

	ambiguity inherent in medical practice		
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Apply epidemiological principles to explain disease transmission and prevention in the community.
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	Utilize public health databases and scientific references to analyze community health problems.
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	
1.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	Implement infection control measures during field activities to protect community and personal safety.
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	Develop community-level preventive plans based on evidence for communicable and non-communicable diseases.
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	
		1.14.2	
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life	1.16.1	
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	Identify social, environmental, and behavioral determinants of community health and disease.
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	Recognize how poverty, education, and cultural practices affect disease patterns and prevention.
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	Discuss nutritional and lifestyle factors to the development and prevention of common diseases.

2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	Identify and prioritize prevalent communicable and non-communicable diseases in the community.
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	Describe preventive strategies for droplet, foodborne, contact, and vector-borne infections.
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	Recognize principles of descriptive and analytical epidemiology to local disease data.
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	Provide health care priorities and preventive programs for maternal, child, and elderly health
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take the proper actions to safeguard their welfare	2.8.1	Identify high-risk groups and propose community interventions to protect them.
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	Demonstrate ethical conduct and cultural sensitivity when working in diverse community settings.
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	Respect and adapt health messages to align with local cultural beliefs and practices.
3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	Maintain confidentiality during data collection and field health surveys.
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	

4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe the body's defense mechanisms to disease transmission and immunity principles.
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Describe the host-agent-environment triad in maintaining or disrupting health.
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	Explain modes of transmission and pathogenesis of common communicable diseases.
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities	4.8.1	Conduct simple epidemiological calculations such as incidence, prevalence, and relative risk.
		4.8.2	Demonstrate the use of epidemiological tools to calculate and interpret basic health indicators such as incidence, prevalence, and attack rate in communicable disease outbreaks.
		4.8.3	Demonstrate the interpretation of epidemic curves and contact tracing data to identify sources and modes of transmission in infectious disease investigations.
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	Collaborate with local health workers during field visits to assess community health needs and participate in public health interventions.
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Participate effectively in team-based field projects and epidemiological investigations.
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	

5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	Demonstrate leadership in organizing and implementing community health awareness sessions.
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	Observe and analyze community health service processes during field visits to suggest evidence-based strategies for improvement.
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	Participate actively in field visits to community health facilities, demonstrating responsibility, teamwork, and commitment to improving community health services.
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that address them.	6.5.1	
6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	Apply basic research methodology in conducting community surveys and analyzing public health data.
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	Evaluate epidemiological studies in terms of validity, bias, and public health relevance.
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	Calculate, interpret, and present epidemiological indices and statistical measures.

6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

21. Interactive Lectures
22. Tutorial classes
23. **Field visits**
24. Directed self learning.

Course Schedule

NO. of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected Number of the Learning Hours			
			Theoretical teaching (lectures/discussion groups/ …...)	Training Practical	Self-learning (Tasks/ Assignments/ Projects/ …)	Field
1.	1. **Basic terms, concepts, and principles of Public Health & Community Medicine**	45	3	4.5	18 h (Home study, tasks, assignments)	4.5 field
	Basic Principles of Epidemiology& Dynamics of disease transmission 2.		3			
	3. **Prevention and control of communicable diseases**		3			
	4. **Epidemiology of common bacterial droplet infections**		3			
	5. **Epidemiology of common viral droplet infections (online**		3			
	6. **Epidemiology of common foodborne infections**		3			
2.	7. **Epidemiology of common Contact infections**	45	3	4.5	18 h (Home study, tasks, assignments) 18 h (Home study, tasks,	4.5
	8. **Epidemiology of common arthropod-transmitted infections**		3			
	9. **Non-Communicable Diseases**		3			
	10. **Environmental health**		3			
	11. **Revision**		3			
	12. **revision**		3			
		90	36	9	36	9

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1	Quiz (Semester work)	First week	-	0
2	End Module exam	Second Week	**12**	**20%**
3	Final Written Exam	16-20 Week	**24**	**40%**
4	Final practical Exam	Second Week	**18**	**30%**
5	Assignments/Portfolio	Throughout the Module	**6**	**10%**
	Field visit	Throughout the Module	**Pass/ fail**	**0**

25. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Walters SJ, Campbell MJ, Machin D. Medical Statistics: A Textbook for the Health Sciences. 5th ed. Chichester: Wiley-Blackwell; 2021. ISBN-13: 978-1-119-42364-5. • Rothman KJ, Greenland S, Lash TL. Modern Epidemiology. 4th ed. Philadelphia: Wolters Kluwer Health; 2021. ISBN: 978-1451193282
	Other References	• Webb P, Bain C, Page A. Essential Epidemiology: An Introduction for Students and Health Professionals. 5th ed. Cambridge: Cambridge University Press; 2023. ISBN-13: 978-1009415361
	Electronic Sources (Links must be added)	• https://pubmed.ncbi.nlm.nih.gov/?term=clinical+research • https://www.equator-network.org/ • http://www.icmje.org/
	Learning Platforms (Links must be added)	- Interactive e-learning platforms (ThinCi) - **Khan Academy – Health & Medicine (Statistics and Probability)** *Interactive lessons covering statistical reasoning and data interpretation relevant to public health and research.* https://www.khanacademy.org/math/statistics-probability - **Coursera – Designing and Conducting Research Projects** *University-level courses on medical research design, epidemiological methods, and community health analysis.* https://www.coursera.org/courses?query=medical%20research
	Other (to be mentioned)	
Supportive facilities & equipment for	**Devices/Instruments**	• desktop or laptop computers with stable internet access • projector and screen (for group teaching & data presentations) • printers / scanners (for research protocols, survey forms, and reports)

teaching and learning *		• calculators (basic & scientific, for quick statistical checks)
	Supplies	• library facilities & online access with updated textbooks and journals • survey / questionnaire forms (printed or digital) • consent forms and ethical approval documents (printed copies for practice) • data collection sheets (for exercises in sampling and recording variables)
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)	access to hospital clinics for hands-on clinical exposure

Name and Signature **Course Coordinator**	**Name and Signature** **Program Coordinator**

Course Specifications

SKL 224

2025 /2026

1. Basic Information

Course Title	**Skill lab III**			
Course Code	SKL 224			
Department/s participating in delivery of the course	• **Psychiatry & Neurology department** • **Internal (General) Medicine department** • **Obstetrics & Gynecology department**			
Number of credit points of the course = 3	**Theoretical**	**Clinical**	**Self-learning (Tasks/ Assignments/ incision academy**	**Total**
		1.8	1.2	3
Number of contact and non-contact hours of the course	-	54	**36**	90
Course duration	2 weeks			
Course Type	Obligatory			
Academic level at which the course is taught	Second year/4th semester			

Academic Program	M.B. Ch.B. 5+2 Program (credit points)
Faculty	Kafrelsheikh Faculty of Medicine
University	Kafrelsheikh University
Name of Course Coordinator	
Course Specification Approval Date	7/10/2024
Course Specification Approval **(Attach the decision/minutes of the department /committee/council ....)**	

2. Course Overview (Brief summary of scientific content)

This course provides second-year medical students with foundational clinical skills related to the central nervous, renal, and reproductive systems, integrating knowledge from anatomy, histology, physiology, and biochemistry into practical application. Students will develop competence in performing system-specific physical examinations, including neurological, renal, and reproductive assessments, while maintaining professional ethics and patient safety. Through demonstrations and supervised practice, students learn to assess mental status, cranial nerves, muscle tone, reflexes, coordination, gait, and renal system signs, as well as to understand the principles of PV and PR examinations using models. The course also introduces urine collection and analysis, fluid balance assessment, and the basic principles of dialysis and interpretation of relevant diagnostic tests, preparing students for clinical reasoning and patient-centered care in later clinical years.

3. Course Learning Outcomes (CLOs)

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

	Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** **Upon completion of the course, the student will be able to:**
Code	**Text**	**Code**	
1.1	Take and record a structured, patient centered history	1.1.1	Take a brief, focused history relevant to neurological, renal, or reproductive symptoms (e.g., headache, urinary changes, menstrual abnormalities).

1.2	Adopt an empathic and holistic approach to the patients and their problems	1.2.1	
1.3	Assess the mental state of the patient	1.3.1	Perform basic assessment of mental status including orientation, memory, and mood
1.4	Perform appropriately timed full physical examination of patients, appropriate to the age, gender, and clinical presentation of the patient while being culturally sensitive	1.4.1	Demonstrate correct examination sequence of cranial nerves, motor system, reflexes, coordination, and gait.
		1.4.2	Perform abdominal examination with focus on renal findings (palpation of kidneys, inspection for edema)
1.5	Prioritize issues to be addressed in a patient encounter	1.5.1	
1.6	Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors	1.6.1	Interpret findings from routine urine analysis and basic renal function tests; recognize common neurological and renal diagnostic indicators
1.7	Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice	1.7.1	
1.8	Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand	1.8.1	Correlate physical examination findings with underlying neuroanatomical, renal, and reproductive physiology
1.9	Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM)	1.9.1	
1.10	Integrate the results of history, physical examination and laboratory test findings into a meaningful diagnostic formulation	1.10.1	Integrate neurological and renal signs with basic test results to suggest possible system involvement.
1.11	Perform diagnostic and intervention procedures in a skillful and safe manner, adapting to unanticipated findings or changing clinical circumstances	1.11.1	Demonstrate correct procedures for urine collection and routine analysis; apply principles of dialysis using models.
1.12	Adopt strategies and apply measures that promote patient safety	1.12.1	Apply infection control and patient safety measures during examinations and specimen handling.
1.13	Establish patient-centered management plans in partnership with the patient, his/her family and other health professionals as appropriate, using Evidence Based Medicine in management decision	1.13.1	
1.14	Respect patients' rights and involve them and/or their families/carers in management decisions	1.14.1	Demonstrate ethical awareness during reproductive system examinations (PV and PR) using models only.
1.15	Provide the appropriate care in cases of emergency, including cardio-pulmonary resuscitation, immediate life support measures and basic first aid procedures	1.15.1	
1.16	Apply the appropriate pharmacological and	1.16.1	

	nonpharmacological approaches to alleviate pain and provide palliative care for seriously ill people, aiming to relieve their suffering and improve their quality of life		
1.17	Contribute to the care of patients and their families at the end of life, including management of symptoms, practical issues of law and certification	1.17.1	
2.1	Identify the basic determinants of health and principles of health improvement	2.1.1	
2.2	Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing	2.2.1	
2.3	Discuss the role of nutrition and physical activity in health	2.3.1	Relate findings of anthropometric measurements to nutritional status and health of renal and musculoskeletal systems.
2.4	Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases	2.4.1	
2.5	Describe the principles of disease prevention, and empower communities, specific groups or individuals by raising their awareness and building their capacity	2.5.1	
2.6	Recognize the epidemiology of common diseases within his/her community and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases	2.6.1	
2.7	Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly	2.7.1	
2.8	Identify vulnerable individuals that may be suffering from abuse or neglect and take the proper actions to safeguard their welfare	2.8.1	
3.1	Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect	3.1.1	Demonstrate respectful communication and professional behavior during skill sessions involving sensitive systems (e.g., PV, PR exams).
3.2	Adhere to the professional standards and laws governing the practice, and abide by the national code of ethics issued by the Egyptian Medical Syndicate	3.2.1	
3.3	Respect the different cultural beliefs and values in the community they serve	3.3.1	

3.4	Treat all patients equally, and avoid stigmatizing any category regardless of their social, cultural or ethnic backgrounds, or their disabilities	3.4.1	
3.5	Ensure confidentiality and privacy of patients' information	3.5.1	
3.6	Recognize basics of medico-legal aspects of practice, malpractice and avoid common medical errors	3.6.1	
3.7	Recognize and manage conflicts of interest	3.7.1	
3.8	Refer patients to the appropriate health facility at the appropriate stage	3.8.1	
3.9	Identify and report any unprofessional and unethical behaviors or physical or mental conditions related to himself, colleagues or any other person that might jeopardize patients' safety	3.9.1	
4.1	Describe the normal structure of the body and its major organ systems and explain their functions	4.1.1	Describe surface anatomy and functional localization of brain, spinal cord, kidneys, and reproductive organs relevant to examination.
4.2	Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body's homeostasis	4.2.1	Explain physiological basis of reflexes, coordination, fluid balance, and urine formation during demonstrations.
4.3	Recognize and describe main developmental changes in humans and the effect of growth, development and aging on the individual and his family	4.3.1	
4.4	Explain normal human behavior and apply theoretical frameworks of psychology to interpret the varied responses of individuals, groups and societies to disease	4.4.1	
4.5	Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis)	4.5.1	
4.6	Describe altered structure and function of the body and its major organ systems that are seen in various diseases and conditions	4.6.1	
4.7	Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population	4.7.1	
4.8	Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and	4.8.1	Demonstrate preparation and interpretation of urine samples and neurological function tests using simulation models

	interpret common diagnostic modalities		
5.1	Recognize the important role played by other health care professionals in patients' management	5.1.1	
5.2	Respect colleagues and other health care professionals and work cooperatively with them	5.2.1	Demonstrate teamwork and communication skills during small-group neurological and renal examination sessions.
5.3	Implement strategies to promote understanding, manage differences, and resolve conflicts	5.3.1	
5.4	Apply leadership skills to enhance team functioning, the learning environment, and/or the health care delivery system	5.4.1	
5.5	Communicate effectively using written health records, electronic medical records, or other digital technology	5.5.1	
5.6	Evaluate his / her work and that of others using constructive feedback	5.6.1	Reflect on personal performance and identify gaps in examination and communication skills through instructor feedback.
5.7	Recognize own personal and professional limits, and seek help from colleagues and supervisors when necessary	5.7.1	
5.8	Apply fundamental knowledge of health economics to ensure the efficiency and effectiveness of the health care system	5.8.1	
5.9	Use health informatics to improve the quality of patient care	5.9.1	
5.10	Document clinical encounters in an accurate, complete, timely, and accessible manner	5.10.1	
5.11	Improve the health service provision by applying a process of continuous quality improvement	5.11.1	
5.12	Demonstrate accountability to patients, society, and the profession	5.12.1	
6.1	Regularly reflect on and assess his / her performance using various performance indicators and information sources	6.1.1	
6.2	Develop, implement, monitor, and revise a personal learning plan to enhance professional practice	6.2.1	
6.3	Identify opportunities and use various resources for learning	6.3.1	Utilize multimedia resources and simulation-based tools to improve understanding of nervous and renal system assessments.
6.4	Engage in inter-professional activities and collaborative learning	6.4.1	
6.5	Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that address them.	6.5.1	

6.6	Effectively manage learning time and resources and set priorities	6.6.1	
6.7	Demonstrate an understanding of the scientific principles of research including its ethical aspects and scholarly inquiry and contribute to the work of a research study	6.7.1	
6.8	Critically appraise research studies and scientific papers in terms of integrity, reliability, and applicability	6.8.1	
6.9	Analyze and use numerical data including the use of basic statistical methods	6.9.1	
6.10	Summarize and present to professional and lay audiences the findings of relevant research and scholarly inquiry	6.10.1	

4. Teaching and Learning Methods

26. Clinical rounds
27. Tutorial classes
28. **Patient simulated classes**
29. Role play classes
30. Directed self learning.

Course Schedule

NO. of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Training Simulated patient/ role play Case discussion	Self-learning (Tasks/ Assignments/ Projects/ ...)	Others
1.	**13.** Assessment of Mental Status and other Functions	45	4.5	**18 h (Home study, tasks, assignments)**	
	14. Examination of Cranial Nerves		4.5		
	15. Assessment of Muscle Tone and Power		4.5		
	16. Assessment of Reflexes (Superficial and Deep Tendon Reflexes)		4.5		
	17. Examination of Coordination and Gait		4.5		
	18. Examination of the Abdomen with Focus on the Renal System		4.5		
2.	**19.** Assessment of Fluid Balance and Edema	45	4.5	**18 h (Home study, tasks,**	

	20. Breast Examination (Inspection and Palpation Techniques on Model – Demonstration)		4.5	**assignments) 18 h (Home study, tasks,**	
	21. Per Vaginal (PV) Examination – Principles Only (Ethical Awareness and Model-Based Demonstration)		4.5		
	22. Per Rectal (PR) Examination – Principles Only (Simulation-Based; Awareness of Procedure Relevance)		4.5		
	23. Urine Collection and Routine Urine Analysis (Demonstration)		4.5		
	24. Demonstration of Dialysis Principles and Interpretation of Common Neurological and Renal Diagnostic Tests		4.5		
		90	**54**	**36**	

5. Methods of Students' Assessment

No.	Assessment Methods*	Assessment Timing (Week Number)	Marks	Percentage of Total Course Marks
1.	Continuous assessment	Throughout the Module	**13.5**	**30%**
3.	Final Clinical Exam	Second Week	**31.5**	**70%**
	Total		**45**	**100%**

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The Main (Essential) Reference for the Course** (must be written in full according to the scientific documentation method)	• Bickley, L. S., & Szilagyi, P. G. (2021). Bates' Guide to Physical Examination and History Taking (13th ed.). Wolters Kluwer Health.
	Other References	Talley, N. J., & O□Connor, S. (2022). Clinical Examination: A Systematic Guide to Physical Diagnosis (9th ed.). Elsevier.
	Electronic Sources (Links must be added)	1. **Clinical Skills Online – University of Glasgow.** (n.d.). *Clinical Skills Tutorials.* Retrieved from https://clinicalskills.net → Step-by-step video demonstrations of fundamental examination and procedural skills.

		2. **MedEdPORTAL – Association of American Medical Colleges (AAMC).** (n.d.). *Peer-reviewed teaching resources for health professions education.* Retrieved from https://www.mededportal.org 3. **Geeky Medics.** (n.d.). *Clinical Examination Guides and OSCE Scenarios.* Retrieved from https://geekymedics.com → Interactive OSCE-style guides and practical examination videos. 4. **TeachMePhysiology.** (n.d.). *Cardiovascular and Respiratory Physiology.* Retrieved from https://teachmephysiology.com 5. **Incision Academy.** (n.d.). *Interactive surgical and procedural skill training platform.* Retrieved from https://www.incision.care/academy → Offers validated e-learning modules and high-quality 3D videos for clinical and procedural skill acquisition. 6. **YouTube – Osmosis & Armando Hasudungan Channels.** (n.d.). *Visual explanations of cardiovascular and respiratory function and pathology.* Retrieved from https://www.youtube.com/user/armandohasudungan
	Learning Platforms (Links must be added)	1. **Moodle Learning Management System (LMS)** – Used for uploading lecture materials, skill videos, assignments, and assessments. https://moodle.org 2. **Microsoft Teams** – Used for virtual tutorials, communication, and feedback sessions. https://www.microsoft.com/en/microsoft-teams 3. **University E-Library Portal** – Provides access to e-books, online journals, and licensed databases (Elsevier ClinicalKey, AccessMedicine). https://www.clinicalkey.com https://accessmedicine.mhmedical.com 4. **Incision Academy** – Offers guided e-learning modules and interactive videos for procedural and examination skill training. https://www.incision.care/academy
	Other (to be mentioned)	• Case studies and ethical dilemma scenarios prepared by the department. • Role-play scripts.
	Devices/Instruments	• desktop or laptop computers with stable internet access

Supportive facilities & equipment for teaching and learning *		• projector and screen (for group teaching, case discussions, and presentations) Student handouts, case sheets, feedback forms, and reflection logs. •
	Supplies	• library facilities & online access with updated textbooks and journals • Whiteboard and markers for discussion summaries. printers / scanners
	Electronic Programs	Interactive e-learning platforms (ThinCi) and Microsoft teams.
	Skill Labs/ Simulators	
	Virtual Labs	
	Other (to be mentioned)