1.	Course title	Introduction to Anatomy and Embryology	
2.	Course number	0532110	
3.	Credit hours	2 Theory	1 Practical
	Contact hours (theory, practical)	28 Lectures: 14 Gross Anatomy, 14 embryology and 12 Labs	
4.	Prerequisites/Corequisites	General Biology 1 (0304101)	
5.	Program title	Doctor of Medicine	
6.	Program code	-	
7.	Awarding institution	The University of Jordan	
8.	School	School of Medicine	
9.	Department	Anatomy and Histology Department	
10.	Course level	Bachelor	
11.	Year of study and semester (s)	First year/ Second Semester	
12.	Other department (s) involved in teaching the course	-	
13.	Main Learning language	English	
14.	Learning Types	☒ Face to face learning ☐Blended ☐Fully online	
15.	Online platforms(s)	☒Moodle ☒ Microsoft Teams ☐Skype ☐Zoom ☐Others……	
16.	Issuing/Revision Date	April-2026	

17. Course Coordinator:

Name: Dr. Abedallah Hamida

Contact hours:

Office number: **Phone number:**

Email: a_hamida@ju.edu.jo

18. Other instructors:

Name: Prof. Heba Kalbouneh

Contact hours: Sundays, Tuesdays and Wednesdays 11:00- 12.00pm

Office number: 148 **Phone number:** 065355000/23480

Email: heba.kalbouneh@ju.edu.jo, Heba.kalbouneh@gmail.com

19. Course Description:

Course Description:

This course provides an essential foundation in human anatomy and embryology. It introduces students to the basic principles of anatomical organization, the relationships between structures, and the general processes of human development. Emphasis is placed on understanding the fundamental concepts of gross anatomy and the stages of embryological development from fertilization to birth, rather than the detailed anatomy of individual body systems, which will be explored in subsequent courses.

Teaching methods include lectures, prosections, anatomical models, 3D imaging, and clinical case discussions to connect theoretical knowledge with practical application. Interactive tools will help students develop the ability to identify anatomical structures and appreciate their functional significance.

By the end of the course, students will have a solid grounding in introductory anatomy and general embryology, preparing them for advanced study of specific body systems and their specialized development in future courses.

20. Program Intended Learning Outcomes (PLOs) (To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program):

1. **Demonstrate basic knowledge of normal human structure and function at molecular, genetic, cellular, tissue, organ, system and whole-body levels in terms of growth, development, and health maintenance. Analyze the basic molecular and cellular mechanisms involved in the causation and treatment of human disease and their influence on clinical presentation and therapy.**

2. **Collect, interpret, document, and communicate accurately a comprehensive medical history, including the psychological and behavioral factors, and a thorough organ-system-specific physical examination inclusive of the mental status of the patient.**

3. **Integrate and communicate collected clinical information in the construction of appropriate diagnostic and therapeutic management strategies to identify life-threatening conditions ensuring prompt therapy, referral, and consultation with relevant disciplines and skillfully perform basic medical procedures for general practice on patients with common illness, acute and chronic, taking into account environmental, social, cultural and psychological factors.**

4. **Demonstrate in-depth knowledge of the epidemiology and biostatistics of common diseases, and analyze the impact of ethnicity, culture, socioeconomic factors and other social factors on health, disease and individual patient's health care.**

5. **Communicate effectively and professionally, both orally and in writing, with patients, their families, and with other healthcare providers utilizing information technology resources in his/her scholarly activities and professional development with the ability to teach others, and to understand and respect other healthcare professionals 'roles, and apply the principles of multidisciplinary teamwork dynamics and collaboration.**

6. **Apply scientific methods including evidence –based approach to the medical practice including problem identification, data collection, hypothesis formulation, etc., and apply inductive reasoning to problem solving and ensure that clinical reasoning and decision making are guided by sound ethical principles.**

7. **Demonstrate knowledge of scientific research methods and ethical principles of clinical research and be able to write research proposals or research papers.**

8. **Demonstrate professionally the skills needed for Quality improvement, lifelong learning, and continuous medical education including the ability to identify and address personal strength and weakness, self-assess knowledge and performance, and develop a self-improvement plan.**

21. Intended Learning outcomes of the course (CLOs): Upon completion of the course, the student will be able to achieve the following intended learning outcomes:

1. **Identify and describe the basic structures of the human body**: Students will be able to recognize and name major body parts, organs, and systems, connecting the structure of body parts to their physiological functions and explain how anatomy supports bodily functions.
2. **Understand anatomical terminology**: Students will demonstrate proficiency in using standard anatomical terms to describe the locations, movements, and positions of various body parts.
3. **Analyze the major organ systems**: Students will describe the structure, function, and interrelationships of the major human organ systems, including the skeletal, muscular, circulatory, respiratory, digestive, and nervous systems.
4. **Apply anatomical knowledge to basic clinical scenarios**: Students will relate anatomical knowledge to practical situations, such as understanding common injuries, diseases, or disorders, and how they affect body structures.
5. **Communicate anatomical knowledge effectively**: Students will communicate anatomical information clearly and accurately, both verbally and in writing, to peers and instructors.
6. **Identify and explain key processes in early development**: Students will be able to define and explain fundamental embryological processes, such as fertilization, cleavage, blastulation, gastrulation, and neurulation.
7. **Relate germ layer derivatives to future system development.** Students will explain how the differentiation of ectoderm, mesoderm, and endoderm establishes the framework for specialized development of body systems studied later.

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program):

Program ILOs / ILOs of the course	CLO (1)	CLO (2)	CLO (3)	CLO (4)	CLO (5)	CLO (6)	CLO (7)
PLO (1)	x	x	x			x	X
PLO (2)					X		
PLO (3)				x			
PLO (4)							
PLO (5)							
PLO (6)							
PLO (7)							
PLO (8)							

23. Topic Outline and Schedule:

Week	Lecture/Lab		Topic Gross / Embryology / Lab	Student Learning Outcome (SLO)	Learning Types (Face to Face/Blended/ Fully Online)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	Lecture-1	Gross	Anatomical Terminology	• Define the anatomical position, anatomical directional terms, and anatomical planes; review anatomical regional terms; outline the major body cavities and their subdivisions and membranes.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lecture-2	Gross	Skeletal System-1 (Axial Skeleton-1)	• Mention the components of the axial and appendicular skeleton and differentiate between them. • Outline the bones forming the skull and describe their main external features. • Identify major anatomical landmarks on skull bones.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lab	Gross	----------	----------	-------	-------	-------	-------	------
2	Lecture-3	Gross	Skeletal System-2 (Axial Skeleton-2)	• Outline the bones forming the vertebral column and thoracic cage (sternum, ribs, and thoracic vertebrae) and describe their main external features. • Identify the key anatomical landmarks of these bones.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lecture-4	Gross	Skeletal System-3 (Appendicular Skeleton-1)	• Identify the bones of the upper and lower limbs and describe their main external features. • Identify major anatomical landmarks and major joints.	Face to face		Synchronous Lecturing	Written exam	28. A1

	Lab-1	Gross	Introductory lab & Axial Skeleton-1 (Skull)	• Define and correctly use anatomical terms related to body positions, planes, and directions (e.g., anterior, posterior, medial, lateral) • Identify and demonstrate the standard anatomical position on models or peers. • Locate major body regions (e.g., thoracic, abdominal, pelvic). • Identify the bones of the skull and describe their main features using anatomical models • Identify major sutures and joints of the skull.	Face to face		Synchronous Lecturing	Written exam	28. B
3	Lecture-5	Gross	Skeletal System-4 (Joints)	• Classify bones according to their shapes. • Classify the types of joints (fibrous, cartilaginous, and synovial). • Classify the types of synovial joints (plane, ball-and-socket, ellipsoid/condyloid, hinge, pivot, and saddle) and relate them to the movements they allow. • Identify the major joints of the axial and appendicular skeleton, describe their articulating surfaces, classify their joint type, and explain the movements they permit.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lecture-6	Gross	Cardiovascular System-1 (Heart)	• Identify the location of the heart in the mediastinum and describe its main external features. • Identify the chambers and valves of the heart and their basic functions. • Define the structure of the pericardium and its layers; trace the flow of blood through the heart. • Identify the major vessels entering and leaving the heart.	Face to face		Synchronous Lecturing	Written exam	28. A1

	Lab-2	Gross	Axial Skeleton-2 (Vertebral Column & Thoracic cage)	• Identify the bones of the vertebral column, ribs, and sternum and describe their main features using anatomical models.	Face to face		Synchronous Lecturing	Written exam	28. B
4	Lecture-7	Gross	Cardiovascular System-2 (Blood Vessels)	• Distinguish between arteries and veins. • Identify the great vessels of the heart; describe the major branches of the aorta; describe the major tributaries of the superior and inferior vena cavae and the structures they drain. • Identify the blood supply of the heart. • Identify the principal arteries and veins of the systemic and pulmonary circulation.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lecture-8	Gross	Nervous System-1 (Nervous Tissue)	• Review the classification of the nervous system into central nervous system (CNS) and peripheral nervous system (PNS) and explain the terms somatic and autonomic. • Identify the types of nervous cells and differentiate between them (neurons and glial cells). • Describe the basic structure and function of a neuron. • Distinguish between gray matter and white matter and identify their locations in the nervous system.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lab-3	Gross	Appendicular Skeleton-1 (Clavicle & Scapula)	• Identify the clavicle and scapula and describe their major anatomical landmarks using anatomical models. • Locate the major joints (sternoclavicular, acromioclavicular, and shoulder joints) • Classify their types and describe the movements they allow.	Face to face		Synchronous Lecturing	Written exam	28. B

5	Lecture-9	Gross	Nervous System-2 (CNS-Brain)	• Describe the basic gross anatomical features of the brain. • Identify the major parts of the brain (cerebrum, cerebellum, and brainstem) and their main subdivisions and functions. • Recognize key external features such as gyri, sulci, and major lobes. • Outline the location and basic function of the ventricles and cerebrospinal fluid (CSF).	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lecture-10	Gross	Nervous System-3 (CNS-Spinal Cord)	• Describe the basic gross anatomical features of the spinal cord. • Identify its extent, segments, and enlargements (cervical and lumbar). • Recognize the external features including spinal nerves and roots.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lab-4	Gross	Appendicular Skeleton-2 (Humerus, Radius, Ulna, & Hand)	• Identify the humerus, radius, ulna, and bones of the hand and describe their major anatomical landmarks using anatomical models. • Locate the major joints (elbow, wrist, metacarpophalangeal, and interphalangeal joints); classify their types and describe the movements they allow.	Face to face		Synchronous Lecturing	Written exam	28. B
6	Lecture-11	Gross	Nervous System-4 (PNS)	• Describe the basic anatomy of spinal nerves and cranial nerves. • Identify the formation of a spinal nerve (dorsal and ventral roots) and its main branches. • Classify cranial nerves based on their function (sensory, motor, or mixed) and recognize their general distribution.	Face to face		Synchronous Lecturing	Written exam	28. A1

	Lecture-1	Embryology	Introduction to Embryology & Developmental Concepts	• Define embryology and explain its clinical significance. • List the three periods of prenatal development and their time frames. • Distinguish between embryonic and fetal periods in terms of sensitivity to teratogens. • Use correct embryological terminology.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab	Gross	Revision Lab	• Review and identify the bones of the axial skeleton and upper limb on anatomical models, cadavers, or virtual tools; recognize key anatomical landmarks and features.	Face to face		Synchronous Lecturing	Written exam	28. B
7	Lecture-2	Embryology	Male Reproductive System: Structure & Functional Overview	• Identify the components of the male reproductive system. • Describe the structure and function of the testes. • Outline the pathway of sperm from production to ejaculation.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lecture-3	Embryology	Female Reproductive System: Structure & Functional Overview	• Identify the components of the female reproductive system. • Describe the structure and function of the ovaries, uterine tubes and uterus. • Explain the relationship between structure and function in fertilization and implantation. • Describe the stages of folliculogenesis and correlate structural changes with hormonal influences.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab-5	Gross	Appendicular Skeleton-3 (Hip)	• Identify the hip bone and describe their major anatomical landmarks using anatomical models. • Locate the major joints (pubic symphysis, sacroiliac, and hip joints); classify their types and describe the movements they allow.	Face to face		Synchronous Lecturing	Written exam	28. B

8	Lecture-4	Embryology	Gametogenesis: Spermatogenesis & Oogenesis	• Explain the processes of mitosis and meiosis and their stages and understand the clinical relevance of both processes. • Compare somatic and germ cells. • Compare spermatogenesis and oogenesis in terms of timing, site and outcomes. • List the sequential phases of spermiogenesis. • Explain the origin of genetic variation during gametogenesis.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lecture-5	Embryology	Reproductive Cycle & Hormonal Regulation	• Describe the phases of the ovarian and uterine cycles. • Correlate ovarian changes with uterine (endometrial) changes. • Correlate hormonal changes with structural changes in the endometrium. • Identify the optimal timing for fertilization within the cycle.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab-6	Gross	Appendicular Skeleton-3 (Femur)	• Identify the femur and describe their major anatomical landmarks using anatomical models. • Locate the major joints (knee joint); classify their types and describe the movements they allow.	Face to face		Synchronous Lecturing	Written exam	28. B
9	Lecture-12	Gross	Muscular System-1	• Define the criteria employed in naming skeletal muscles; explain the roles of the prime mover, antagonist, and synergist in muscle action; relate muscle structure to its basic function. • Identify the main muscles of the head and neck region by name, action, and innervation. • Identify the muscles forming the thoracic and abdominal walls by name, action, and innervation	Face to face		Synchronous Lecturing	Written exam	28. A1

	Lecture-6	Embryology	First Week of Development I: Fertilization	• Define fertilization and state its normal site. • Describe the steps of fertilization including capacitation and acrosome reaction. • Explain the biological significance of fertilization. • Explain the mechanisms that prevent polyspermy.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab-7	Gross	Appendicular Skeleton-2 (Tibia, Fibula, & Foot)	• Identify the tibia, fibula, and bones of the foot and describe their major anatomical landmarks using anatomical models. • Locate the major joints (knee and ankle joints); classify their types and describe the movements they allow.	Face to face		Synchronous Lecturing	Written exam	28. B
10	Lecture-13	Gross	Muscular System-2	Identify the main muscle groups of the upper limb by name, action, and innervation; recognize their general location and organization.	Face to face		Synchronous Lecturing	Written exam	28. A1
	Lecture-7	Embryology	First Week of Development II: Cleavage & Blastocyst Formation	• Define cleavage and describe the pattern of early mitotic divisions of the zygote. • Identify the stages of early embryonic development, including the zygote, morula, and blastocyst. • Identify the components of the blastocyst. • Discuss the process of blastocyst hatching from the zona pellucida and its significance for implantation.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab-8	Gross	Cardiovascular System (Heart & Major B.V)	• Identify the external anatomical features of the heart, its chambers, and valves using anatomical models or cadaveric specimens. • Identify the major branches of the aorta; identify the major tributaries of the superior and inferior vena cavae using anatomical models or cadaveric specimens.	Face to face		Synchronous Lecturing	Written exam	28. B

	Lecture-14	Gross	Muscular System-3	• Identify the main muscle groups of the lower limb by name, action, and innervation; recognize their general location and organization.	Face to face		Synchronous Lecturing	Written exam	28. A1
11	Lecture-8	Embryology	Second Week of Development I: Implantation	• Describe the stages of implantation (apposition, adhesion and invasion) and its timing. • Differentiate between cytotrophoblast and syncytiotrophoblast. • Explain the role of the syncytiotrophoblast in endometrial invasion, erosion of maternal vessels and initiation of uteroplacental circulation. • Explain the basis of early pregnancy detection. • Relate early developmental events to selected clinical conditions, such as ectopic pregnancy.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab-9	Gross	Muscular System-1 (Face & Trunk muscle)	• Identify and locate the major muscles of the head and trunk on anatomical models, cadavers, or virtual dissection tools; describe their basic actions and innervation.	Face to face		Synchronous Lecturing	Written exam	28. B
12	Lecture-9	Embryology	Second Week of Development II: Bilaminar Disc & Extraembryonic Structures	• Describe the formation of the bilaminar embryonic disc. • Describe the formation of the amniotic cavity and the primary yolk sac. • Explain the development of the extraembryonic mesoderm, its subdivisions and chorionic cavity. • Define the secondary (definitive) yolk sac and distinguish it from the primary yolk sac. • Identify the amnion and chorion. • Define the connecting stalk and its future significance as the umbilical cord.	Face to face		Synchronous Lecturing	Written exam	28. A2

	Lecture-10	Embryology	Third Week of Development I: Gastrulation	• Define gastrulation and describe formation of the trilaminar disc. • Identify the three germ layers and their general derivatives. • Describe the formation of primitive streak and primitive node and establishment of the body axes. • Define buccopharyngeal and cloacal membranes.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab-10	Gross	Muscular System-2 (Upper & Lower Limbs)	• Identify and locate the major muscle groups of the upper and lower limbs on anatomical models, cadavers, or virtual dissection tools; describe their basic actions and innervation.	Face to face		Synchronous Lecturing	Written exam	28. B
13	Lecture-11	Embryology	Third Week of Development II: Notochord & Early Differentiation	• Describe the formation and function of the notochord. • Explain the induction of the neural plate and initiation of neurulation • Outline early differentiation of intraembryonic mesoderm into its subdivisions. • Outline the beginning of cardiovascular system formation (vasculogenesis).	Face to face		Synchronous Lecturing	Written exam	28. A2

	Lecture-12	Embryology	Embryonic Folding	• Explain the driving forces of folding. • Describe the types of embryonic folding and differentiate between them in terms of direction and outcomes. • Explain the repositioning of key structures during cephalocaudal folding, including cardiogenic plate, septum transversum, oropharyngeal membrane and cloacal membrane • Describe gut tube formation and identify the subdivisions of the primitive gut. • Explain the formation of the intraembryonic coelom and its relationship to future body cavities.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab-11	Gross	Revision Lab	• Review and identify the bones of the lower limb, major components of the cardiovascular system, and major muscle groups on anatomical models, cadavers, or virtual tools	Face to face		Synchronous Lecturing	Written exam	28. B
14	Lecture-13	Embryology	Fetal Membranes & Umbilical Cord	• Identify the fetal membranes, their components and fuctions. • Describe the formation and contents of the umbilical cord. • Explain the functional significance of fetal membranes in development.	Face to face		Synchronous Lecturing	Written exam	28. A2

	Lecture-14	Embryology	Placenta: Structure, Development & Function	• Describe the development of chorionic villi (primary, secondary, tertiary). • Differentiate between chorion frondosum and chorion laeve in placental development. • Identify the fetal and maternal components of the placenta. • Identify the functions of the placenta and its role in maternal–fetal exchange. • Describe how the placental barrier thins during pregnancy to facilitate exchange.	Face to face		Synchronous Lecturing	Written exam	28. A2
	Lab	Gross	----------	----------	----------	------	-------	---------	----

24. Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity		Mark	Topic(s)	Descriptors **	Period (Week)	Platform
Midterm exam	Gross (Theory)	30	Anatomical terminology, Skeletal system, Cardiovascular system, Nervous system	K S	8th week	Computer-Based Exam
	Gross (Practical)	10	Anatomical terminology, Skeletal system (Axial and Upper limb bones)	C		
Final exam	Gross (Theory)	10	Muscular System	K S	15th -16th week	Computer-Based Exam
	Gross (Practical)	10	Lower limb bones, Cardiovascular, Muscular system	C		
	Embryology	40	Introduction to Embryology, Male and Female Reproductive System, Gametogenesis, Reproductive Cycle, First Week of Development I&II, Second Week of Development I&II, Third Week of Development I&II, Embryonic Folding, Fetal Membranes & Umbilical Cord, Placenta	K S		
	** K: Knowledge, S: Skills, C: Competency					

25. Course Requirements

- ✓ **Class room Lectures**
- ✓ **Internet connection**
- ✓ **Online educational material using Moodle platform (Electronic Videos and Activities)**
- ✓ **Anatomy Lab**

26. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- ✓ **Class room Lectures**
- ✓ **Interactive Videos and Animations**
- ✓ **Online activities and assignments**
- ✓ **Open Laboratory sessions**
- ✓ **Discussion sessions and forums**
- ✓ **Game- based learning**

27. Course Policies:

A- Attendance policies:

Attendance will be monitored by the course coordinator. Attendance policies will be announced at the beginning of the course.

B- Absences from exams and handing in assignments on time:

Will be managed according to the University of Jordan regulations. Refer to http://registration.ju.edu.jo/Documents/daleel.pdf

C- Health and safety procedures:

Faculty Members and students must at all times, conform to Health and Safety rules and procedures.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this course and also integrity in your behavior in and out of the classroom. Students violate this policy would be subjected to disciplinary action according to University of Jordan disciplinary policies

E- Grading policy:

Grade-point average, Rules are preset by the Faculty and Department Councils

F- **Available university services that support achievement in the course:**

Availability of comfortable lecture halls, data show, internet service and E learning website https://elearning.ju.edu.jo/ .

28. References:

A- Required book (s), assigned reading and audio-visuals:

1- **Gray, H. Gray's Anatomy: With original illustrations by Henry Carter. ANY EDITION OR Snell, R. Clinical Anatomy by Systems. ANY EDITION**
2- **Langman's Medical Embryology 14th Edition**

B- Recommended books, materials, and media:
Agur and Dalley. Grant's Atlas of Anatomy. ANY EDITION

28. Additional information:

Name of Course Coordinator: **Dr. Abedallah Hamida** Date: April-2026 Signature:

Other instructors: **Prof. Heba Kalbouneh** Date: April-2026 Signature:

Head of Department: **Dr. Ghada Abu el Ghanam** Signature:

Head of Curriculum Committee/Faculty: Signature:

Dean: Signature: