



Course Syllabus

1	Course title	Vertebrate Anatomy	
2	Course number	0364361	
3	Credit hours	3	3
	Contact hours (theory, practical)	2, 1	
4	Prerequisites/corequisites	Bio 102	
5	Program title	B.Sc. Biological Sciences	
6	Program code	04	
7	Awarding institution	The University of Jordan	
8	School	Science	
9	Department	Biological Sciences	
10	Course level	3 rd year	
11	Year of study and semester (s)	2023/2024 First Semester	
12	Other department (s) involved in teaching the course	N/A	
13	Main teaching language	English	
14	Delivery method	xFace to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	Online platforms(s)	xMoodle <input type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....	
016	Issuing/Revision Date	8.10.2023	

17 Course Coordinator:

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**18 Other instructors:**

Name:

Office number:

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Contact hours:

Name:

Office number:

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Email:

Contact hours:

19 Course Description:

This course aims to introduce the students to the study of the Vertebrates. It will expose the students to the external morphology, embryological, structural, functional and evolutionary approaches. The course will integrate vertebrate anatomy with functional morphology and phylogeny. The following systems will be discussed: the integument, skeletal, digestive, muscular, circulatory, respiratory, excretory and the nervous and sense organs.

20 Course aims and outcomes:



A- Aims:

This course aims to introduce the students to the study of the Vertebrates. It will expose the students to the external morphology, embryological, structural, functional and evolutionary approaches. The course will integrate vertebrate anatomy with functional morphology and phylogeny. The following systems will be discussed: the integument, skeletal, digestive, muscular, circulatory, respiratory, excretory and the nervous and sense organs.

B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to:

1. Develop an understanding of the levels of organization and classification of vertebrates
2. Explain vertebrate evolution and the adaptations for the transition to land
3. Describe the characteristics of major taxa and compare their anatomy, physiological features, and life-history characteristics.
4. Compare the structure and function of organ systems within the main groups of vertebrates and how the different groups of vertebrates adapt to the environmental conditions
5. Interpret a phylogenetic tree with regards to evolutionary relationships within the vertebrates (homology and homoplasy)
6. Learn the rules and methods of classification and identification of vertebrates using identification keys

SLOs SLOs of the course	SLO (1)	SLO (2)	SLO (3)	SLO (4)	SLO (5)	SLO (6)
1	X					
2	X					
3	X					
4	X					
5	X		X			
6	X					

21. Topic Outline and Schedule:

Week	Lecture	Topic	Teaching Methods*/platform	Evaluation Methods**	References
1	1.1	Introduction	Lecture	Exam	Ch 1
	1.2	Introduction	Lecture	Exam	Ch 1
	Lab 1	Phylum Chordata: Subphylum Cephalochordata, Subphylum Vertebrata	In lab: slides/models Amphioxus, Lamprey	Lab Exam	Lab manual
2	2.1	Phylogenetic relationships of Chordates and Craniates	Lecture	Exam	Ch 2
	2.2	Phylogenetic relationships of Chordates and Craniates	Lecture	Exam	Ch 2
	Lab 2	Taxonomy and External Anatomy: Amphibia, Reptilia	Examining material and using taxonomic keys	Lab Exam	Lab handout
3	3.1	Diversity and Phylogenetic history of Craniates	Lecture	Exam	Ch 3
	3.2	Diversity and Phylogenetic history of Craniates	Lecture	Exam	Ch 3
	Lab 3	Taxonomy and External Anatomy: Mammalia	Examining material and using taxonomic keys	Lab Exam	Lab handout
4	4.1	Diversity and Phylogenetic	Lecture	Exam	Ch 3

		history of Craniates			
	4.2	Diversity and Phylogenetic history of Craniates	Lecture	Exam	Ch 3
	Lab 4	Integumentary System, skin, hair, feathers, scales, horns, glands,	Examining slides, models, specimens in lab	Lab Exam	Lab handout
5	5.1	The integument	Lecture	Exam	Ch 6
	5.2	The integument	Lecture	Exam	Ch 6
	Lab 5	The Cranial Skeleton: The Skull	Examining models in lab	Lab Exam	Lab handout
6	6.1	The cranial skeleton	Lecture	Exam	Ch 7
	6.2	The cranial skeleton	Lecture/Discussion		Ch 7
	Lab 6	The Postcranial Skeleton: Vertebral Column and Appendicular Skeleton	Examining models in lab	Lab exam	Lab handout
7	7.1	The axial skeleton	Lecture	Exam	Ch 8
	7.2	The axial skeleton	Lecture	Exam	Ch 8
	Lab 7	Midterm exam		Lab Midterm exam	
8	8.1	The appendicular skeleton	Lecture	Exam	Ch 9
	8.2	The appendicular skeleton	Discussion	Exam	Ch 9
	Lab 8	Dissection of the Dogfish: External morphology, Skeletal system, Muscular system	Practical work in lab	Lab Exam	Lab manual

		and Digestive system.			
9	9.1	Functional anatomy and locomotion	Lecture	Exam	Ch 11
	9.2	Functional anatomy and locomotion	Lecture/discussion	Exam	Ch 11
	Lab 9	Dissection of the Dogfish: Circulatory System: Arterial and Venous systems and Urogenital system. Nervous System	Practical work in lab	Lab Exam	Lab manual
10	10.1	Functional anatomy and locomotion	Lecture	Exam	Ch 11
	10.2	Functional anatomy and locomotion	Lecture/Discussion	Exam	Ch 11
	Lab 10	Dissection of the Dogfish: review	Practical work in lab	Lab Exam	
11	11.1	The digestive system	Lecture	Exam	Ch 16
	11.2	The digestive system	Lecture/Discussion	Exam and homework	Ch 17
	Lab 11	Anatomy of the vertebrate heart	Examining models in lab	Lab Exam	Lab handout
12	12.1	The respiratory system	Lecture	Exams and homework	Ch 18
	12.2	The circulatory system	Lecture	Exam	Ch 19
	Lab 12	Anatomy of the vertebrate brain	Examining models in lab	Lab Exam	Lab handout



13	13.1	The excretory system and osmoregulation	Lecture	Exam	Ch 20
	13.2	The excretory system and osmoregulation	Lecture	Exam	Ch 20
	Lab 13	Dissection of the Rat/Rabbit	Practical work in lab	Lab Exam	Lab handout
14	14.1	The reproductive system	Lecture	Exam	Ch 21
	14.2	The nervous system	Lecture	Exam	Ch 12-14
	Lab 14	Final lab exam		Lab final exam	
15	15.1				
	15.2				
	15.3				

- Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
- Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz...etc

22 Evaluation Methods:

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

Evaluation Activity	Mark	Topic(s)	Period (Week)	Platform
First Exam (theory)	15%	Ch 1, 2, 3, 6	1-4	Written exam
Second Exam (theory)	15%	Ch 7, 8, 9, 11	4-8	Written exam
Midterm Exam (Lab)	15%	W 1-7	1-7	In Lab
Final Exam (Lab)	15%	W 8-14	8-14	In Lab
Assignments and participation	10%	Entire course	1-14	
Final Exam (theory)	30%	Ch 1, 3, 11, 16, 17, 18, 19, 20		Written exam



23 Course Requirements

(e.g: students should have a computer, internet connection, webcam, account on a specific software/platform...etc): Non required

24 Course Policies:

A- Attendance policies:

All students are expected to adhere to the rules of conduct outlined in the University of Jordan Student Handbook.

<http://studentaffairs.ju.edu.jo/Pages/PDFGuidestudent.aspx>

Enrolled students are expected to attend the lectures in line with the university of Jordan policy as outlined in the UJ student handbook. Failure to do so will make the student subject to the penalties outlined in the said document. Furthermore, missing classes will have negative repercussions on the student's participation grade.

B- Absences from exams and submitting assignments on time:

Absences from exams and handing in assignments on time: You should talk to your instructor as soon as possible if you miss an exam. All such cases will be dealt with according to the UJ student handbook rules.

C- Health and safety procedures:

All students should wear lab coats and use their dissection kits with caution during their time in the lab, students should be aware of their surroundings, working space, and exit(s) for the lab.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

Honesty policy regarding cheating, plagiarism, misbehavior: All violations pertaining to cheating, plagiarism and misbehavior will be dealt with in accordance to the rules outlined in the UJ student handbook. In order to avoid plagiarism, the sources for the information contained in your homework must be properly cited and verbatim quotations must be limited and explicitly presented as such. To learn more about the procedures for ethical referencing of information and how to assess the credibility of information critically you can consult with the relevant documents in the course UJ e-learning page (see below). You can use any standard citation style (e.g., Chicago or MLA), but in biological sciences we prefer AMA.

E- Grading policy.

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

- University of Jordan's E-Learning online educational portal → <http://www.elearning.ju.edu.jo>

25 References:



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

Functional Anatomy of the Vertebrates by Liem et al. Third Edition. 2001.

Atlas and Dissection Guide for Comparative Anatomy, Wischnitzer, S. Freeman Publications.

B- Recommended books, materials and media:

Vertebrate Life, Pough et al. Pearson Publications.

C-sources and audiovisuals

1. Rediscovering Biology: Molecular to global perspectives:

<http://www.learner.org/courses/biology/index.html>

2. UC Berkeley's Understanding Evolution webpage: <http://evolution.berkeley.edu/>

3. PBS's evolution library: <http://www.pbs.org/wgbh/evolution/library/index.html>

4. What Darwin Never Knew (Nova documentary, 2010)

If you purchase a new copy of the textbook, you can enroll in the (Biology: A Global Approach, Global Edition, 11e) website. At <http://www.masteringbiology.com>

26 Additional information:

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Name of Course Coordinator: -- Dr. Mohammad Abu Baker ---Signature: ----- Date: 8.10.2023
Head of Curriculum Committee/Department: ----- Signature: -----
Head of Department: ----- Signature: -----
Head of Curriculum Committee/Faculty: ----- Signature: -----
Dean: ----- Signature: -----