

TEXAS A&M INTERNATIONAL UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF BIOLOGY AND CHEMISTRY

SPRING 2013

Anatomy and Physiology II

Lecture 20160 BIOL 2402 201 Anatomy and Physiology II
Room: Bullock Hall 101
MWF 13:30 to 14:20

Laboratories

20155	BIOL 2002 2L1	Raul Uribe
S	9:00 to 11:50	
LBVSC	188	
20151	BIOL 2002 2L2	Daniel, Michael
T	9:00 to 11:50	
LBVSC	188	
20152	BIOL 2002 2L4	Oscar Ramos
T	12:00 to 14:50	
LBVSC	188	
20153	BIOL 2001 2L6	Brenda Arambula
R	9:00 to 11:50	
LBVSC	188	
20154	BIOL 2001 2L8	Oscar Ramos
R	12:00 to 14:50	
LBVSC	188	

Instructor: Fernando G. Quintana, Ph.D.
Office: LBVC: 311
Telephone: 326 2589
E-mail: fquintana@tamiu.edu
Office hours: 10:00 am to 11:30 am MWF
6:00 pm to 7:00 pm MW

Laboratory Instructors

Name: Michael Daniel, M.Sc.
Office: LBVC 159
Telephone: 956 326 2498
Office hours: By appointment
E-Mail: mdaniel@tamiu.edu

Name: Oscar Ramos, M.Sc.
Office: LBVSC: 379E
Telephone: 956 326 2587
E-mail: oramos@tamiu.edu
Office hours: By appointment

Name: Raul Uribe, M.SC.
Office: LBBSC: 312
Telephone: 956 326 2441
E-Mail: TBA
Office hours: By appointment

Name: Brenda Arambula
Office: LBVSC: 312
Telephone: 956 326 2441
E-Mail: TBA
Office hours: By appointment

Course description:

BIOL 2402 Anatomy and Physiology II. Four semester hours

A continuation of BIOL 2401 that includes endocrine, circulatory, respiratory, digestive, urinary, and reproductive systems. Other topics include metabolism, acid-base balance, development, and heredity.

Prerequisite: Consult your departmental advisor or obtain instructor's permission. Carries no credit for biology majors. Lecture/Laboratory. Lab fee: \$30.00. Texas A&M International University, Catalog 2006-2008, page 268.

Student Learning Outcomes: After completing of the course the students will be able to:

1. Apply critical thinking to examine primary literature concerning molecular biology in order to effectively defend a conclusion.
 2. Use the scientific method to design an experiment and analyze a data set to determine a conclusion.
 3. Demonstrate effective technical communication skills.
 4. Collaborate effectively on a research project and on a presentation of scientific results.
- I. Endocrine System
1. Distinguish between the nervous system and the endocrine system
 2. Distinguish between paracrine and endocrine cellular communication
 3. Classify hormones according with their chemical properties.
 4. Describe the patterns of hormonal interaction.
 5. Describe the mechanisms of hormonal action
 6. Describe the anatomy and functions of the hypothalamus and pituitary gland
 7. Describe the anatomy and function of the thyroid and parathyroid glands
 8. Describe the anatomy and function of the adrenal gland
 9. List the hormones of the intestines, kidneys, heart, thymus, gonads, and adipose tissue, and describe their function.
- II. Cardiovascular System
1. Discuss the characteristics of blood, including plasma, red blood cells, white blood cells and platelets
 2. Discuss the heart and its function, including its anatomy, heartbeat cycle, and blood pressure
 3. Discuss the anatomy and function of the blood vessels, including cardiovascular physiology and regulation, the pulmonary circuit, the systemic circuit, and fetal circulation.
- III. Respiratory System
1. Describe the anatomy and function of the respiratory system
 - a. Describe the anatomy and function of the upper respiratory system
 - b. Describe the anatomy and function of the larynx
 - c. Describe the anatomy and function of the trachea and primary bronchi
 - d. Describe the anatomy and function of the lungs
 - e. Discuss the process of ventilation
 - f. Discuss the process of gas exchange
- IV. Digestive System
1. Describe the anatomy of the digestive system
 2. Describe the function of the digestive system
 - a. Discuss the process of digestion of carbohydrates, lipids, and proteins
 - b. Discuss the process of absorption of carbohydrate nutrients, lipid nutrients and protein nutrients.
- V. Metabolism
1. Discuss the processes of glycolysis and mitochondrial ATP production
 2. Discuss the processes of lipid metabolism
 3. Discuss the processes of protein metabolism
 4. Discuss thermoregulation
- VI. Urinary System
1. Describe the anatomy of the urinary system

2. Discuss the function of the kidneys

VII. Electrolyte and acid-base balance

1. Describe the fluid and electrolyte balance
2. Describe the acid-base balance

VIII. Reproductive System and Development

1. Describe the anatomy of the male reproductive system.
2. Discuss the physiology of the male reproductive system
3. Describe the anatomy of the female reproductive system
4. Discuss the physiology of the female reproductive system
5. Discuss and describe the process of fertilization
6. Discuss and describe the process of development

IX Heredity

1. Discuss the principles of heredity
2. Discuss Genes and gene expression

Core-Curriculum Learning Outcomes:

1. Critical Thinking: includes creative thinking, innovation, inquiry and analysis, evaluation, and synthesis of information. (SLOs: 1 & 2)
2. Communication Skills: Students will demonstrate their ability to communicate effectively by using written communication. (SLOs: 3 & 4)
3. Empirical and Quantitative Skills: includes the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLOs: 2)
4. Teamwork: includes the ability to work effectively with others to support a shared goal. (SLOs: 4)

Textbooks:

Human Anatomy & Physiology; Eighth Edition
Elaine N. Marieb; Katja Hoehn
Benjamin Cummings; ISBN 978-0-8053-9569-3

Human Anatomy & Physiology: Laboratory Manual; Eighth Edition
Elaine N. Marieb; Susan J. Mitchell
Benjamin Cummings; ISBN 0-321-54247-9

Course Grading Policy:

There will be twenty daily exams, two laboratory practical exams, a final comprehensive examination, and a research project. Your grade will be calculated based on the following distribution:

1.	Daily exams	30%
2.	Laboratory	30%
3.	Final Comprehensive Exam	30%
4.	Research Project	10%

Grades will be recorded from "A" to "F". Numerical values corresponding to these letters are as follows:

A	90-100, excellent
B	80-89, good
C	70-79, average
D	60-69, passing
F	below 60, failure

Note: You are expected to be present for every class meeting and laboratory session.

Course policy: exams and laboratory sessions will not be made up under any circumstance. Please advise the instructor in case of emergency. If due to an excused absence an exam is missed, the grade in the final exam will be used to replace the missed grade to compute the final grade

1/22/2013	First Class Day	First Class Day.	
1/28/2013	Final Late Registration Day	Final Late Registration Day; course changes continue through February 1 with permission of instructor.	
February 2012			
Date	Event	Details	
2/6/2013	Twelfth Class Day	Twelfth Class Day; last day courses may be dropped without record. May	
2/18/2013	Twentieth Class Day	Twentieth Class Day. All tuition and fees MUST be paid in full to avoid being dropped from course(s) for non-payment. Reinstatement is not an option.	
March 2013			
	Date	Event	Details
<input type="checkbox"/>	3/8/2013	Mid Semester	Mid Semester.
<input type="checkbox"/>	3/11/2013	Spring Break	Spring Break; no classes.
<input type="checkbox"/>	3/13/2013	Mid-term Grades due	Mid-term Grades due.
April 2013			
Date	Event	Details	
3/29/2013	Easter Holiday	Easter Holiday; no classes; University open.	
4/18/2013	Last day to drop a course or withdraw from the University	Last day to drop a course or withdraw from the University.	
4/22/2013	Faculty Evaluations	Faculty Evaluations.	
May 2013			
Date	Event	Details	
5/7/2013	Last Class Day	Last Class Day.	
5/8/2013	Reading Day	Reading Day. No classes. No exams.	
5/9/2013	Final Examination period	Final Examination period.	

Tentative sessions:

Day	Topic	Session
Wednesday, January 23	Endocrine System	1
Friday, January 25	Endocrine System	2
Monday, January 28	Endocrinology System	3
Wednesday, January 30	Endocrine System	4
Friday, February 1	Exam	1
Monday, February 4	Circulatory System	4
Wednesday, February 6	Circulatory System	5
Friday, February 8	Exam	2
Monday, February 11	Circulatory System	6
Wednesday, February 13	Respiratory System	7
Friday, February 15	Exam	3
Monday, February 18	Respiratory System	8
Wednesday, February 20	Respiratory System	9
Friday February 22	Exam	4
Monday, February 25	Digestive System	10
Wednesday, February 27	Digestive System	11
Friday, March 1	Exam	5

Monday, March 4	Digestive system	12
Wednesday, March 6	Urinary System	13
Friday, March 8	Mid -Term Exam	6
Monday, March 11	Spring Break	Holiday
Wednesday, March 13	Spring Break	Holiday
Friday, March 15	Spring Break	Holiday
Monday, March 18	Urinary System	14
Wednesday, March 20	Urinary System	15
Friday March 22	Exam	7
Monday, March 25	Metabolism	16
Wednesday, March 27	Metabolism	17
Friday, March 29	Exam	8
Monday, April 1	Fluid and Electrolyte balance	18
Wednesday, March 3	Fluid and Electrolyte balance	19
Friday, April 5	Exam	8
Monday, April 8	Fluid and Electrolyte balance	20
Wednesday, April 10	Acid-base balance	21
Friday, April 12	Exam	9
Monday, April 15	Faculty evaluations	22
Wednesday, April 17	Acid-base balance	23
Friday, April 19	Exam	10
Monday, April 22	Faculty Evaluation	24
Wednesday, April 24	Reproductive System	25
Friday, April 26	Exam	11
Monday, April 29	Reproductive System	26
Wednesday, May 1	Principles of heredity	27
Friday, May 3	Exam	12
Monday, May 6	Principles of heredity	28

Laboratory policy: Laboratories will not be made up under any circumstance. Please advise the instructor in case of emergency.

Laboratory room: BVC 188

Tentative laboratory sessions:

BIOL 2002	Topic
January 22 to 26	Introduction, Expectations & Laboratory Safety
January 28 to February 1	Exercise 27: The Endocrine System
Feb. 4 to Feb. 9	Exercise 29 A: Blood
February 11 to 16	Exercise 30: The Heart
February 18 to 23	Exercises 32 & 33A: Blood Vessels & Blood Pressure
February 25 to March 2	Exercise 36: Structure of The Respiratory System
Mar 4 to Mar. 9	Mid-Term Exam
March 11 to 16	Spring Break
March 18 to 23	Exercise 37A: Function of the Respiratory System
March 25 March 30	Exercise 38: Structure of The Digestive System
April 1 to April 6	Exercise 39A: Digestive Physiology
April 8 to April 13	Exercise 40: The Urinary System
April 15 to April 20	Exercise 41A: Urinalysis
April 22 to April 27	Exercise 42: The Male & Female Reproductive System
April 29 to May 4	Final Exam

Policies of the College of Arts and Sciences (Required on all COAS Syllabi)

Classroom Behavior

The College of Arts and Sciences encourages classroom discussion and academic debate as an essential

intellectual activity. It is essential that students learn to express and defend their beliefs, but it is also essential that they learn to listen and respond respectfully to others whose beliefs they may not share. The College will always tolerate diverse, unorthodox, and unpopular points of view, but it will not tolerate condescending or insulting remarks. When students verbally abuse or ridicule and intimidate others whose views they do not agree with, they subvert the free exchange of ideas that should characterize a university classroom. If their actions are deemed by the professor to be disruptive, they will be subject to appropriate disciplinary action, which may include being involuntarily withdrawn from the class.

Plagiarism and Cheating

Plagiarism is the presentation of someone else's work as your own. **1)** When you borrow someone else's facts, ideas, or opinions and put them entirely in your own words, you must acknowledge that these thoughts are not your own by immediately citing the source in your paper. Failure to do this is plagiarism. **2)** When you also borrow someone else's words (short phrases, clauses, or sentences), you must enclose the copied words in quotation marks as well as citing the source. Failure to do this is plagiarism. **3)** When you present someone else's paper or exam (stolen, borrowed, or bought) as your own, you have committed a clearly intentional form of intellectual theft and have put your academic future in jeopardy. This is the worst form of plagiarism.

Here is another explanation from the 2010, sixth edition of the *Manual of The American Psychological Association* (APA):

Plagiarism: Researchers do not claim the words and ideas of another as their own; they give credit where credit is due. Quotations marks should be used to indicate the exact words of another. *Each* time you paraphrase another author (i.e., summarize a passage or rearrange the order of a sentence and change some of the words), you need to credit the source in the text.

The key element of this principle is that authors do not present the work of another as if it were their own words. This can extend to ideas as well as written words. If authors model a study after one done by someone else, the originating author should be given credit. If the rationale for a study was suggested in the Discussion section of someone else's article, the person should be given credit. Given the free exchange of ideas, which is very important for the health of intellectual discourse, authors may not know where an idea for a study originated. If authors do know, however, they should acknowledge the source; this includes personal communications. (pp. 15-16)

Consult the Writing Center or a recommended guide to documentation and research such as the *Manual of the APA* or the *MLA Handbook for Writers of Research Papers* for guidance on proper documentation. If you still have doubts concerning proper documentation, seek advice from your instructor prior to submitting a final draft.

Use of Work in Two or More Courses: You may not submit work completed in one course for a grade in a second course unless you receive explicit permission to do so by the instructor of the second course.

Penalties for Plagiarism: Should a faculty member discover that a student has committed plagiarism, the student should receive a grade of 'F' in that course and the matter will be referred to the Honor Council for possible disciplinary action. The faculty member, however, may elect to give freshmen and sophomore students a "zero" for the assignment and to allow them to revise the assignment up to a grade of "F" (50%) if they believe that the student plagiarized out of ignorance or carelessness and not out of an attempt to deceive in order to earn an unmerited grade. This option should not be available to juniors, seniors, or graduate students, who cannot reasonably claim ignorance of documentation rules as an excuse.

Caution: Be very careful what you upload to Turnitin or send to your professor for evaluation. Whatever you upload for evaluation will be considered your final, approved draft. If it is plagiarized, you will be held responsible. The excuse that "it was only a draft" will not be accepted.

Caution: Also, do not share your electronic files with others. If you do, you are responsible for the possible consequences. If another student takes your file of a paper and changes the name to his or her name and submits it and you also submit the paper, we will hold both of you responsible for plagiarism. It is impossible for us to know with certainty who wrote the paper and who stole it. And, of course, we cannot know if there was collusion between you and the other student in the matter.

Penalties for Cheating: Should a faculty member discover a student cheating on an exam or quiz or other class project, the student should receive a "zero" for the assignment and not be allowed to make the assignment up. The incident should be reported to the chair of the department and to the Honor Council. If the cheating is extensive, however, or if the assignment constitutes a major grade for the course (e.g., a final exam), or if the student has cheated in the past, the student should receive an "F" in the course, and the matter should be referred to the Honor Council. Under no circumstances should a student who deserves an "F" in the course be allowed to withdraw from the course with a "W."

Student Right of Appeal: Faculty will notify students immediately via the student's TAMIU e-mail account that they have submitted plagiarized work. Students have the right to appeal a faculty member's charge of academic dishonesty by notifying the TAMIU Honor Council of their intent to appeal as long as the notification of appeal comes within 5 business days of the faculty member's e-mail message to the student. The *Student Handbook* provides details

UConnect, TAMIU E-Mail, and Dusty Alert

Personal Announcements sent to students through TAMIU's UConnect Portal and TAMIU E-mail are the official means of communicating course and university business with students and faculty – not the U.S. Mail and not other e-mail addresses. Students and faculty must check UConnect and their TAMIU e-mail accounts regularly, if not daily. Not having seen an important TAMIU e-mail or UConnect message from a faculty member, chair, or dean is not accepted as an excuse for failure to take important action. Students, faculty, and staff are encouraged to sign-up for *Dusty Alert* (see www.tamtu.edu). *Dusty Alert* is an instant cell phone text-messaging system allowing the university to communicate immediately with you if there is an on-campus emergency, something of immediate danger to you, or a campus closing.

Copyright Restrictions

The Copyright Act of 1976 grants to copyright owners the exclusive right to reproduce their works and distribute copies of their work. Works that receive copyright protection include published works such as a textbook. Copying a textbook without permission from the owner of the copyright may constitute copyright infringement. Civil and criminal penalties may be assessed for copyright infringement. Civil penalties include damages up to \$100,000; criminal penalties include a fine up to \$250,000 and imprisonment.

Students with Disabilities

Texas A&M International University seeks to provide reasonable accommodations for all qualified persons with disabilities. This University will adhere to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal education opportunity. It is the student's responsibility to register with the Director of Student Counseling and to contact the faculty member in a timely fashion to arrange for suitable accommodations.

Incompletes

Students who are unable to complete a course should withdraw from the course before the final date for withdrawal and receive a "W." To qualify for an "incomplete" and thus have the opportunity to complete the course at a later date, a student must meet the following criteria:

1. The student must have completed 90% of the course work assigned before the final date for withdrawing from a course with a "W", and the student must be passing the course;
2. The student cannot complete the course because an accident, an illness, or a traumatic personal or family event occurred after the final date for withdrawal from a course;
3. The student must sign an "Incomplete Grade Contract" and secure signatures of approval from the professor and the college dean.
4. The student must agree to complete the missing course work before the end of the next long semester; failure to meet this deadline will cause the "I" to automatically be converted to a "F"; extensions to this deadline may be granted by the dean of the college.

This is the general policy regarding the circumstances under which an "incomplete" may be granted, but under exceptional circumstances, a student may receive an incomplete who does not meet all of the criteria above if the faculty member, department chair, and dean recommend it.

Student Responsibility for Dropping a Course

It is the responsibility of the STUDENT to drop the course before the final date for withdrawal from a course. Faculty members, in fact, may not drop a student from a course without getting the approval of their department chair and dean.

Independent Study Course

Independent Study (IS) courses are offered only under exceptional circumstances. Required courses intended to build academic skills may not be taken as IS (e.g., clinical supervision and internships). No student will take more than one IS course per semester. Moreover, IS courses are limited to seniors and graduate students. Summer IS course must continue through both summer sessions.

Grade Changes & Appeals

Faculty are authorized to change final grades only when they have committed a computational error or an error in recording a grade, and they must receive the approval of their department chairs and the dean to change the grade. As part of that approval, they must attach a detailed explanation of the reason for the mistake. Only in rare cases would another reason be entertained as legitimate for a grade change. A student who is unhappy with his or her grade on an assignment must discuss the situation with the faculty member teaching the course. If students believe that they have been graded unfairly, they have the right to appeal the grade using a grade appeal process in the *Student Handbook* and the *Faculty Handbook*.

Final Examination

Final Examination must be comprehensive and must contain a written component. The written component should comprise at least 20% of the final exam grade. Exceptions to this policy must receive the approval of the department chair and the dean at the beginning of the semester.