# BIOL 2102 Anatomy and Physiology II LAB

## Lecture

<table>
<thead>
<tr>
<th>Section</th>
<th>Course</th>
<th>Time</th>
<th>Instructor</th>
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</thead>
<tbody>
<tr>
<td>20160</td>
<td>BIOL 2402 201 Anatomy and Physiology II</td>
<td>MWF 13:30 to 14:20</td>
<td>Fernando G. Quintana, Ph.D.</td>
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<td>Office: LBVC: 311</td>
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<td></td>
<td>Telephone: 326 2589</td>
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<td>E-mail: <a href="mailto:fquintana@tamiu.edu">fquintana@tamiu.edu</a></td>
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<td>Office hours: 10:00 am to 11:30 am MWF, 6:00 pm to 7:00 pm MW</td>
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## Laboratories

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<thead>
<tr>
<th>Section</th>
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<th>Time</th>
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<tbody>
<tr>
<td>20155</td>
<td>BIOL 2002 2L1</td>
<td>S 9:00 to 11:50</td>
<td>Raul Uribe</td>
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<td>LBVSC 188</td>
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<tr>
<td>20151</td>
<td>BIOL 2002 2L2</td>
<td>T 9:00 to 11:50</td>
<td>Daniel, Michael</td>
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<td>LBVSC 188</td>
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<tr>
<td>20152</td>
<td>BIOL 2002 2L4</td>
<td>T 12:00 to 14:50</td>
<td>Oscar Ramos</td>
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<td>LBVSC 188</td>
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<tr>
<td>20153</td>
<td>BIOL 2001 2L6</td>
<td>R 9:00 to 11:50</td>
<td>Brenda Arambula</td>
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<td>LBVSC 188</td>
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<tr>
<td>20154</td>
<td>BIOL 2001 2L8</td>
<td>R 12:00 to 14:50</td>
<td>Oscar Ramos</td>
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<td>LBVSC 188</td>
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## Instructor:

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

## Laboratory Instructors

- **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: Upon completion of the course 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: 3)
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

Human Anatomy & Physiology: Laboratory Manual; Eighth Edition
Elaine N. Marieb; Susan J. Mitchell

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.
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:

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

**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’s 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.tamiu.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 damages up to $100,000; criminal penalties include damages 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.