BIO 265 LAB: Anatomy and Physiology II Lab Course Syllabus

Course Description

BIO 265: Human Anatomy and Physiology II is the second part of a two-semester course that prepares students for further study in the health and medical fields. Most students must take both the lecture portion and the lab portion to fulfill prerequisite requirements. This course is the lab course for Bio 265. It includes 11 modules that will help you learn anatomy for the cardiovascular system, respiratory system, digestive system, urinary system and reproductive system. This course will also have some labs that cover important physiological processes in these systems. When a lab requires you to learn anatomy, you will take quizzes similar to the Bio 264 labs and fill in the blank questions will appear on the lab exams. When the lab requires you to learn some physiology principles, you will be required to submit an online worksheet to have your answers graded.

Course Learning Outcomes

This course will be organized as is shown below:

Module 1: Special Senses

1.1 Describe the 5 types of taste receptors and their location within papillae on the tongue.
1.2 Determine the density of papillae on the tongue.
1.3 Explain how humans adapt smells.
1.4 Determine visual acuity and discuss what it means to be "legally blind"
1.5 Explain how the eye adapts for near and far vision.
1.6 Determine the near point of vision and explain what presbyopia is.
1.7 Explain visual astigmatism and test for astigmatism.
1.8 Explain a visual blind spot and experience this blind spot.
1.9 Explain Conductive and Sensorineural Hearing Loss.
1.10 Explain Echo Location and how that might be possible in humans.

**Module 2: Cardiovascular Anatomy**

2.1 Identify and understand key terminology relating to the anatomy of the heart
2.2 Identify and understand key terminology relating to the anatomy of the circulatory vessels (arteries and veins).

**Module 3: EKG, Pulses and Blood Pressure**

3.1 Explain each normal EKG wave and what it means
3.2 Describe Einthoven's triangle and how to set one up
3.3 Describe the PR interval, QRS interval, QT interval, and and ST segment is and what kinds of things might cause them to change.
3.4 Explain what the electrical axis of the heart is
3.5 Find and electrical axis from and EKG tracing
3.6 Recognize some basic abnormal EKG tracings
3.7 Describe what a pulse is and take a pulse at several given arteries
3.8 Explain what systolic and diastolic pressures are and how to measure them with a sphygmomanometer and a stethoscope
3.9 Explain the heart sounds S1, S2, S3 and S4.

**Module 4: Blood Lab**

4.1 Identify the different types of White Blood Cells and explain their major functions.
4.2 Explain how blood typing works. Identify acceptable and unacceptable blood transfusions with ABO and Rh blood grouping.
4.3 Explain a Hematocrit and what kinds of things in physiology can change it
4.4 Describe what a lipid profile is and discuss what the values mean for LDL, Total Cholesterol, Triglycerides and HDL.

**Module 5: Respiratory System and Lung Volumes**

5.1 Measure and explain standard lung volumes.
5.2 Describe obstructive and restrictive lung pathology
5.3 Discuss and FEV1 and measure an FEV1
5.4 Explain what an FEV1/FVC ratio is and how restrictive and obstructive lung pathology changes these
5.5 Describe negative and positive pressure ventilation and how humans may use these principles when breathing

**Module 6: Respiratory and Digestive System Anatomy**

6.1 Identify and understand key terminology relating to the anatomy of the respiratory system
6.2 Identify and understand key terminology relating to the anatomy of the digestive system
Module 7: Autonomic Nervous System Case Study

7.1 Use a case study approach to research and understand the autonomic nervous system neurotransmitters and receptors.
7.2 Use a case study approach to research and understand signs and symptoms of organophosphate poisoning and pheochromocytoma.

Module 8: Urinalysis

8.1 Describe what a urinalysis reagent test strip is and use some provided results to solve a medical issue.
8.2 Discuss what Glomerular Filtration Rate is and how it is derived.
8.3 Discuss how plasma clearance of creatinine can be used to estimate GFR. Then describe how a plasma clearance value can give us an idea of secretion and reabsorption.
8.4 Explain what respiratory acidosis and alkalosis are. Explain what metabolic acidosis and alkalosis are.
8.5 Use an acid / base nomogram to solve for types of acidosis and alkalosis.

Module 9: Metabolism Lab

9.1 Define metabolism
9.2 Explain the difference between basal metabolic rate and resting metabolic rate
9.3 Measure resting metabolic rate
9.4 Define VO₂ max, then convert volume of oxygen used to calories expended.
9.5 Measure an exercise metabolism
9.6 Research and discuss diet and exercise as weight loss activities

Module 10: Endocrine Case Study

10.1 Use a case study approach to research and diagnose some endocrine disorders
10.2 Use a case study approach to research and understand negative feedback loops that regulate hormones in the case study.

Module 11: Urinary and Reproductive System Anatomy

11.1 Identify and understand key terminology relating to the anatomy of the Urinary System
11.2 Identify and understand key terminology relating to the anatomy of the reproductive system

Required Materials

This course will supply all of the reading and online study material that you will need to pass the course. There is no required textbook; however, students often report that they invest significant funds in printing the lab manual files so that they can be stored in a binder. While students are not required to do this, it is recommended that the lab manual be printed and referred to often.
Computer with Internet Access

It is your responsibility to arrange use of a computer with internet access. (The higher speed you have for your internet access, the easier the course will be for you to complete.)

**Online Only Students** Microphone and Earphones

You are required to have a microphone for your computer and a set of earphones that will work with your computer and the online meeting tool (Adobe Connect).

**Grading**

The course grade will be determined by the following graded assignments:

- **Module Practice Quizzes for Anatomy Labs:** You may take these as many times as you want and your highest score will count. We encourage you to take these quizzes many times for your practice benefit. There are 3 Module Practice Quizzes for Anatomy (20 points each) for a total of **60 points**.

- **Module Exams:** These are closed book and on your honor. All of the module exams are fill in the blank. There are 3 Module exams (25 points each) for a total of **75 points**.

- **Lab Worksheets:** Labs that teach physiology principles have worksheets. These worksheets are online and must be submitted online for grading. The worksheets have been reproduced in your lab manual in case you want to work on them offline. However, don't forget to put the answers in online and submit them when you need to have them graded. There are 8 lab worksheets (25 points each) for a total of **200 points**.

- **Lab Proctored Exams:** Each proctored exam will cover 2 to 3 modules. Proctored exams may include anatomy and physiology principles from that labs that you do. There are 3 proctored exams (150 points each) for a total of **450 points**.

- **Collaboration Boards:** Interact with your instructor and classmates during each module so that you can deepen your understanding of concepts and principles. You may ask questions, share difficult practice quiz, or reply to scenarios or questions posed by the instructor. Be involved!
During review weeks, the Collaboration Board will be the method in which you will complete an Exam Review Activity. Each of these assignments will be worth 5 points each for a total of 10 points.

- Extra Credit Option: Instructors will have the discretion to offer extra credit. Please be in contact with your instructor for further information.

TOTAL POINTS FOR COURSE: 800 POINTS

Lab Worksheet Assignments

You will have several lab assignments in addition to learning anatomy. The questions are short answer and essay and will be graded by the instructor and/or TA and only allow one attempt. Watch for deadlines as late assignments are not accepted.

PLEASE NOTE: When writing responses to the questions in the lab assignments, the response must be in your own words. Do not copy an answer from information online, unless it is cited, and only for a portion of your explanation. In addition, while group work is encouraged, do not use the same wording for your answer as your partner(s). Doing either of these is considered academic dishonesty.

Academic Dishonesty

There are other forms of academic dishonesty besides cheating and plagiarism. Please read through the examples listed. This is not an all inclusive list but is a sample of what is still considered dishonest, including sharing course quiz questions with online quiz and testing sites.

From the Student Honor Office:

Inadvertent plagiarism involves the inappropriate, but non-deliberate, use of another’s words, ideas, or data without proper attribution. Although not a violation of the Honor Code, it is a form of academic misconduct for which an instructor can impose appropriate academic sanctions.

- Continuing work on an examination or assignment after the allocated time has elapsed.
- Submitting the same work for more than one class without disclosure and approval.
• Getting equal credit on group assignments when equal work was not done.
• Using unauthorized materials during an examination or while completing an assignment.
• Collaborating on an examination or assignment without authorization.
• Obtaining or providing to another a test or answers to a test that has not been administered.

**Directions for Taking Proctored Lecture Exams:**

To help you understand what is required for proctored exams a Testing Center Consensus must be completed before you can continue with your module studies. This is found under module 1 and is due the same day everything in the module is due.

**There will be 3 proctored exams in this course**

You are required to take these tests in a proctored setting. If you live within a 30-minute drive to Rexburg, Idaho, you will follow the first set of instructions. If you cannot drive to Rexburg to take the test, you will follow the second set of instructions.

**For Those Who Live Within a 30-Minute Drive of Rexburg**

If you are within a 30-minute drive to Rexburg, you are required to take the exams on campus. Read the following web page to get more information on the testing hours and locations.

http://www.byui.edu/testing-services

You are responsible for knowing when the testing centers are open and when they close. You should plan on spending at least 120 minutes to take this exam; however, the test is not timed, so you can spend a longer time on it if needed. Keep in mind the testing center hands out the last test an hour before it closes, and please note that the center closes early on Monday. Please refer to the Schedule for the correct exam schedule for the current semester. It is your responsibility to make sure that you take the test within the outlined time frame.

**Online Only Students** For Those Who Cannot Drive to Rexburg to Take the Exam

If you cannot drive to the BYU-Idaho campus to take the exam, you will need to make arrangements to have someone proctor your test. You are
NOT required to take this exam in a university testing center or other professional testing center. Read the following web pages to get directions on who may act as a proctor. Please note that you will need to submit the “Proctor Request Form” at least two days before you plan on taking the exam. Also, as you fill out the proctor request form, make sure the proctor’s email is correct!

Find and request an approved proctor here:

http://www.byui.edu/testing-services/proctoring

You can take the exam any time between the time frame as outlined on the Schedule. The test will open at 8 a.m MT. the day the exam opens and then close automatically at 8:30 p.m MT. on the day the exam closes. If you have not submitted your test by that time, you will not receive a grade for the exam. It is your responsibility to make arrangements with the proctor to take the test. If you have any questions about your proctor or the exam, please contact your instructor. Use the link below to take the exam.

**Grading Scale:**

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**Course Policies**

You should read the following course policies and make sure that you understand what these policies mean to you regarding your interactions with
the instructor and other students in this course. If you have questions about any of these policies, you should contact your instructor immediately.

**Course Assignments**

Since BIO 265L is a one credit course, at the minimum, you should spend 2-3 hours a week to complete all the learning activities for each module. However, please be advised that 2-3 hours a week may not be enough for you to successfully learn everything that you need to know, so depending on your familiarity with the material, be aware that you may need to spend **more dedicated time each week** to study and practice the material. It is common for students to spend upwards of 6-10 hours in order to receive an “A” or “B”.

In order to keep up with the assignments and learn the most from this class, you should make sure you schedule regular time each day to study for this class. With this course, there is no "time off" for holidays that might occur during the week. Consequently, you should make sure to arrange your study schedule so that any holiday activities do not keep you from completing learning activities.

**Late Policy**

Students should not ask instructors to extend deadlines or allow makeups. However, it is understood that emergencies happen. It is the responsibility of the student to notify the instructor of such emergencies.

**Personal Honor**

In this class, our interactions with each other should be guided at all times by the following principles of personal honor:

**Principles of Personal Honor -- "True at all Times"**

- Personal honor is integrity in fulfilling commitments, responsibilities, and covenants.
- Personal honor begins with willing obedience and is fully developed when we consistently govern ourselves by true principles.
- Personal honor increases spiritual strength through the ministry of the Holy Ghost.
- Personal honor is central to every aspect of our lives, including the BYU-Idaho experience.
- Personal honor brings us joy and happiness; deepens our desire to love,
serve, and lift others; and ultimately helps us to become more like the Savior.

You should make sure that you understand the above principles of personal honor. It is important for all class members to strive to follow the above principles in our associations with one another.

If you have any questions about how Personal Honor is related to academic honesty or the university's Dress and Grooming Standards, you may visit the University Standards web page (http://www.byui.edu/StudentHonor/UniversityStandards.htm) to get more information.

**Students with Disabilities**

BYU-Idaho is committed to providing a working and learning atmosphere which reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the Services for Students with Disabilities Office by phone at 208-496-9210 or via email at disabilityservices@byui.edu. Reasonable academic accommodations are reviewed for all students who have qualified documented disabilities. Services are coordinated with the student and instructor by this office. If you need assistance or feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established policy and procedures. Contact the Human Resources Office at 208-496-1700 or via email at humanresources@byui.edu.