Course Description and Objectives

Welcome to the Introduction to Human Physiology Laboratory (BIO 244)! This is a separately graded, one-credit course conducted in conjunction with the BIO 242 Human Physiology course. Concurrent enrollment or prior credit in BIO 242 is required. Each week, you will conduct experiments that illustrate physiological mechanisms you have learned in lecture. Through these hands-on experiments, you will be able to reinforce the theoretical knowledge of physiological processes, and develop a better understanding of the scientific method.

Required Materials

- **Lt access:** we will be using a cloud based learning interface as an electronic lab manual, and for a number of pre-lab and lab activities. Scratch cards with access codes are available at the bookstore. You will receive an email invitation from KuraCloud (the online host for Lt) to join the lab and create a sign in during the first week of labs. Do not erase it! For more info on how to sign into Lt once you have received your e-mail invite, please go to: http://support.kuracloud.com/video/first-time-sign

  **Note:** If you do not receive the invite after the first week of labs, please contact me. Also keep in mind that Lt will start asking for your access code after the first week of labs when the grace period for the course ends. You will NOT be able to access Lt without a code after this point.

- **Lab Coat:** The bookstore sells disposable lab coats. One lab coat can be used for the whole semester, and then it can be disposed of. If you are renting a lab coat for another lab, you *can* use the rented lab coat for physiology too. The important thing is that you do NOT wash your lab coat at home! The chemicals in the lab should not be mixed with your regular laundry!

- **Access to Sakai:** Pre-lab PowerPoints and other laboratory resources will be available on Sakai. I encourage you to review, download or print outlines to facilitate note taking and learning. To access to Sakai, go to https://sakai.uri.edu. If you have any problems accessing Sakai, contact me during the first week of class so that I can help you! I will use Sakai as means of class communication, as well as a place to post course related material (readings, study guide, grades, etc.) Please, check the site regularly!
Evaluation Format:

Your final lab grade will be based on:

- On-line cheating and plagiarism assignment → 2 points
- 9 Lt pre-lab assignments (drop the lowest) → 15 points
- 10 Lab quizzes (drop the 2 lowest) → 45 points
- 3 homework assignments (drop the lowest) → 28 points
- Attendance/ lab participation → 10 points

Total= 100 points

Online cheating and plagiarism quiz (2%)
You will be required to complete an activity on Sakai to make sure that 1) you understand what cheating and plagiarism mean, and 2) that you are clear about the consequences of such behavior. You will receive an e-mail with a link, and you will be expected to complete this activity before you submit your first homework assignment on the week of February 27th. Note: your homework assignments will not be graded until you complete this activity and quiz.

Lt pre-lab assignments (15%)
Before coming to lab, we will always expect you to be prepared. This preparation might consist of reading the lab we will be performing, or you might have to complete an online Lt assignment (within KuraCloud). You must complete these assignments before lab, or you will be unable to login to the Lt to complete the lab. The Lt pre-lab activities will provide you with a theoretical foundation for the lab (thus decreasing the time pre-lab instructions take), and they also allows us to verify that you are prepared to start your experiment. The Lt assignments can be accessed from any device with internet access!

Quizzes (45%)
Each lab session will begin with a short (~15 min) quiz covering material from the previous lab as well as a question or two about what we will be doing in the current lab. Quizzes will consist of 7 or 8 questions based on the previous week’s lab, and 1-2 questions from the current lab. The format of these quizzes will be as follows:

- 8 questions will have a multiple choice style format
- 2 Questions will have a short answer format

There will be 11 quizzes during the course of the semester, and you will be allowed to drop your lowest 2 grades. This semester we are allowing you to drop 2 quizzes as we recognize that many students get sick (flu, cold, etc.) and/or miss one quiz because they are late or other non-URI approved excuses. If you miss a lab quiz and you do not have a URI approved excuse, you will receive a zero in such quiz! No exceptions! Students who arrive late to lab will not be given extended time to complete their quiz. Note: during the digestive lab (lab 11) you will do an in lab activity that will count as your 11th quiz.

Homework Assignments (28%)
You will be required to submit a total of 3 written assignments based on the labs performed during the previous week. The lowest of the three grades will be dropped (yes! that means you can just do 2 if you are happy with your grade). The first assignment is mandatory, and it will be based on lab 2 (Cell transport mechanisms). After that, you will be allowed to select 2 more assignments of your choice from the labs marked (HW+) in the lab schedule.
Rubrics for each assignment will be provided. These assignments will sometimes involve presenting and interpreting data. Although these assignments are not lab reports, data should be presented accurately and professionally. Graphs and other figures will be expected to be computer generated. Students will hand in hard copies of their typed and stapled assignments at the beginning of the following lab. There will be a penalty for late submissions, unless University approved excuses are provided. The penalties for late work are as follows:

- Late submission on the same day as lab: -10%
- Late submission on the day after lab: -20%
- Late submission 2 - 5 days after lab: -50%
- Work will not be accepted after that time

Participation/Attendance (10%):
Most students who come to lab and complete their experiments will receive credit for each lab section they attend. The general expectations are that you will:

- Arrive on time and fully prepared
- Observe all laboratory rules and instructions
- Actively and cooperatively participate in the lab activities
- Answer all questions within the lab activities in Lt
- Complete the whole lab activity before leaving lab

Any of the following can result in forfeiture of the weekly participation point: arriving late, arriving without a lab coat if needed, using a cell phone in the lab during restricted times, bringing food or drink into lab, not engaging in lab activities, or leaving without completing the lab activities or leaving without cleaning up your lab space.

Final Grades will be determined as follows:

<table>
<thead>
<tr>
<th>Letter grade</th>
<th>% Score</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>94-100</td>
</tr>
<tr>
<td>A-</td>
<td>90-93.9</td>
</tr>
<tr>
<td>B+</td>
<td>87-89.9</td>
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<tr>
<td>B</td>
<td>84-86.9</td>
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<tr>
<td>B-</td>
<td>80-83.9</td>
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<tr>
<td>C+</td>
<td>77-79.9</td>
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<tr>
<td>C</td>
<td>74-76.9</td>
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<tr>
<td>C-</td>
<td>70-73.9</td>
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<tr>
<td>D+</td>
<td>67-69.9</td>
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<tr>
<td>D</td>
<td>64-66.9</td>
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<tr>
<td>F</td>
<td>Below 63.9</td>
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</table>

Rules, Policies and Expectations
Students are expected to come prepared to each lab, and to:

1. Abide by all lab safety guidelines and procedures. Students violating safety rules may be asked to leave the lab.
2. Treat the lab equipment with care and respect, as it is a shared resource and replacement is costly. You may only use the equipment, including the computers, as directed by the instructor.
It is important that students do not alter the settings of the software, save anything on the computer, or browse the internet.

3. Leave the lab station in the condition in which you found it. Equipment should be cleaned and/or put away as appropriate, according to the instructor's direction. Under no circumstances may students leave the laboratory with any laboratory equipment or damage or deface the equipment or laboratory resources in any way.

4. All materials are to be disposed of according to the instructor's direction. Hazardous waste must be disposed of in the hood in the appropriately labeled container. Your instructor will inform you when a material constitutes hazardous waste.

5. Bring your lab coat for all wet labs → you will be sent home if you do not have it!

6. Wear personal protective equipment (gloves, lab coats and goggles) when handling hazardous material, as indicated by their instructor.

7. Turn cell phones off (not on vibrate, silent or airplane mode) during labs that involve the PowerLab system, as cell phones interfere with the recordings. During other laboratories, please keep your phones on vibrate or silenced. The use of smart phones, tablets or computers for non-lab related work will not be tolerated. If you need to text/need a break, feel free to do it outside of the lab. Students in violation of this rule may be asked to leave, and attendance points will be deducted.

8. Food and drink items, including chewing gum and water, must be left outside in the corridor. There are no exceptions to this important safety rule. Additionally, students may not use the laboratory wastebaskets to dispose of any food or drink containers or packaging. The EPA can impose fines of $40,000 per food/wrapper item found in the lab!

9. No open-toed shoes or sandals are allowed in lab → you will be sent home!

**Behavior**

Students are expected to comport themselves in accordance with the Community Standards of Behavior. The creation of a hostile learning environment will not be tolerated. In the event of conduct unacceptable to the instructor, students may be asked to leave the laboratory, and attendance points will be deducted.

**Students with Disabilities**

Any student with a documented disability should inform their lab instructor, as well as the lab manager, Aura Grandidge as early in the semester as possible so that we may arrange reasonable accommodations. As part of this process, please be in touch with the Disability Services for Students Office at 330 Memorial Union.

**Useful Links**

**Disability Services:** http://www.uri.edu/disability/dss/
**Academic Enhancement Center:** http://www.uri.edu/aec/
**Health Services:** http://health.uri.edu/
**Academic Calendar:** http://www.uri.edu/es/menus/acadcal.html
<table>
<thead>
<tr>
<th>Date</th>
<th>Laboratory Topic</th>
<th>Activity</th>
<th>Lab coat required</th>
<th>Pre lab assignment</th>
<th>HW due</th>
<th>Quiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/22</td>
<td>Lab 1: Intro to Safety/Microscopy</td>
<td>Review of laboratory policies. Lab handout: Intro to the Physiology Lab</td>
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<tr>
<td>5/24</td>
<td>Lab 2: Membrane Transport Mechanisms part I</td>
<td>Cell transport mechanisms. Handout will be provided.</td>
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<tr>
<td>5/31</td>
<td>Lab 3: Membrane Transport Mechanisms part II and Intro to Lt</td>
<td>Completion of Cell Transport Mechanisms lab. Exploration of Lt.</td>
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<tr>
<td>6/2</td>
<td>Lab 4: Sensory physiology, reflexes and reaction times</td>
<td>Lt: Sensory physiology, reflexes and reaction times</td>
<td></td>
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<td>HW1</td>
<td>3</td>
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<tr>
<td>6/5</td>
<td>Lab 5: Muscle Physiology: Electromyography</td>
<td>Lt: Electromyography</td>
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<tr>
<td>6/7</td>
<td>Lab 6: Cardiac physiology part I</td>
<td>Lt: Electrocardiography and Blood Pressure</td>
<td></td>
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<td>HW2+</td>
<td>5</td>
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<td>6/12</td>
<td>Lab 7: Cardiac Physiology part II</td>
<td>Blood lab: typing and determination of hematocrit</td>
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<td>HW3+</td>
<td>6</td>
</tr>
<tr>
<td>6/14</td>
<td>Lab 8: Respiratory Physiology</td>
<td>Lt: Airflow</td>
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<td>HW4+</td>
<td>7</td>
</tr>
<tr>
<td>6/19</td>
<td>Lab 9: Renal Physiology: Urinalysis and kidney function</td>
<td>Urinalysis</td>
<td></td>
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<td>HW5+</td>
<td>8</td>
</tr>
<tr>
<td>6/21</td>
<td>Lab 10: Digestive Physiology</td>
<td>Digestive System Processes: Physical and Chemical. An activity during this lab will count as quiz #10</td>
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<td></td>
<td>HW6+</td>
<td>9</td>
</tr>
</tbody>
</table>

*You can choose 2 from these homework assignments. You only submit a total of 3 Homework assignments, and drop the lowest grade.*