Welcome to Human Physiology! This is an introductory course that explores how the human body works. This course will introduce some of the known structures and functions of organ systems, organs, tissues, cells & organelles found within the human body.

Physiology is the study of normal body function. Pathophysiology is the study of abnormal body function such as occurs in some diseases. Many aspects of human physiology and pathophysiology remain poorly understood. Improving our understanding of physiology is the goal of ongoing scientific research (conducted by scientists called physiologists).

Please note that human physiology is an enormous and very complex subject. We will not be able to cover every aspect of human physiology within a single semester. One important goal of this course is to encourage your enthusiasm for future learning about physiology.

THIS SYLLABUS IS NOT A CONTRACT. Dr. Adams reserves the right to revise any aspect of this syllabus at any time.

FACTUAL INFORMATION. The primary learning objective of this course is to acquire factual information about human physiology. Because of this, you will be expected to memorize considerable detailed information. You will also be expected to understand important concepts and processes.

Lecture Time & Place: Tuesday & Thursday 10:30 - 11:45 AM in ESLC 130

Laboratory Time & Place: all laboratories will be conducted in LSB 208

Instructor: Brett Adams, Ph.D.

Office: VSB 124

Email: brett.adams@usu.edu

Voice mail: 435-797-7107

Office Hours: Please contact me by email (brett.adams@usu.edu) with questions, or to arrange a meeting.

Course Fees: There is a fee of $110 associated with the laboratory portion of this course.

Textbook: There is NO required textbook for this course. However, I have placed numerous copies of several human physiology textbooks on reserve in USU Library Course Reserves for your use. If you want to buy your own textbook, I recommend Stuart Fox's Human Physiology, 14th edition or later. However, almost any human physiology textbook will be adequate, as long as it was published fairly recently (within the last 5 or so years).

Grading: There will be four (4) lecture exams. All exams will be proctored at the USU Testing Center. If you miss an exam - for any reason - you will receive a score of zero points for the missed exam. NO MAKE-UP EXAMS or EARLY EXAMS WILL BE GIVEN.

FINAL GRADE: Your final letter grade in this course will be determined by the total number of points that you score on your four (4) lecture exams plus your total accumulated laboratory points from your laboratory section. Please note that laboratory points are worth ~ 33% of your total points in the course, so lab points exert a big influence on determining your final grade.

Lecture exams will cover material presented during lecture. Each lecture exam will be worth approximately 140 points. On these exams, you will be responsible for ALL of the material presented in class, regardless of whether it is presented verbally, written on the white board, or projected on the screen. Projected lecture material will be recorded using Kaltura and posted to Canvas. On occasion there may be some technical problems with Kaltura that are completely BEYOND MY CONTROL. These problems may prevent Kaltura recordings of certain lectures from being available. I will routinely make audio-only back-up recordings of lectures and will post them on Canvas as needed. On occasion the back-up audio recordings of lectures may fail and may not always be available.

How to Earn Points from your Laboratory Section: There are four (4) ways to earn points in lab:

- **Grading**: There will be four (4) lecture exams. All exams will be proctored at the USU Testing Center. If you miss an exam - for any reason - you will receive a score of zero points for the missed exam. NO MAKE-UP EXAMS or EARLY EXAMS WILL BE GIVEN.

- **Laboratory Fees**: There is an associated with the laboratory portion of this course. However, I have placed numerous copies of several human physiology textbooks on reserve in USU Library Course Reserves for your use. If you want to buy your own textbook, I recommend Stuart Fox's Human Physiology, 14th edition or later. However, almost any human physiology textbook will be adequate, as long as it was published fairly recently (within the last 5 or so years).

- **Grading**: There will be four (4) lecture exams. All exams will be proctored at the USU Testing Center. If you miss an exam - for any reason - you will receive a score of zero points for the missed exam. NO MAKE-UP EXAMS or EARLY EXAMS WILL BE GIVEN.

- **Final Grade**: Your final letter grade in this course will be determined by the total number of points that you score on your four (4) lecture exams plus your total accumulated laboratory points from your laboratory section. Please note that laboratory points are worth ~ 33% of your total points in the course, so lab points exert a big influence on determining your final grade.

- **Lecture Exams Cover Material Presented During Lecture**: Each lecture exam will be worth approximately 140 points. On these exams, you will be responsible for ALL of the material presented in class, regardless of whether it is presented verbally, written on the white board, or projected on the screen. Projected lecture material will be recorded using Kaltura and posted to Canvas. On occasion there may be some technical problems with Kaltura that are completely BEYOND MY CONTROL. These problems may prevent Kaltura recordings of certain lectures from being available. I will routinely make audio-only back-up recordings of lectures and will post them on Canvas as needed. On occasion the back-up audio recordings of lectures may fail and may not always be available.

- **How to Earn Points from Your Laboratory Section**: There are four (4) ways to earn points in lab:
1.) You MUST attend the laboratory section for which you are officially registered because ONLY your official Teaching Assistant (TA) will keep track of your lab points. TAs in other lab sections won't know who you are and they DO NOT have access to your points. Therefore, if you don't attend the specific lab section for which you are officially registered YOU WILL LOSE POINTS and your final grade will SUFFER.

2.) Up to 50 laboratory points per semester can be earned by correctly answering - BEFORE you attend lab - the Pre-Lab Questions distributed by your official TA in advance of each lab exercise. Your TA will grade your Pre-Lab Questions and will keep track of the points you earn for correctly answering them. They will also keep track of the points you earn for laboratory attendance and participation. Each set of Pre-Lab Questions is potentially worth up to five (5) points per week.

IMPORTANT: YOU WILL NOT RECEIVE ANY POINTS FOR CORRECTLY ANSWERED PRE-LAB QUESTIONS UNLESS YOU ALSO ATTEND AND PARTICIPATE IN THE LAB.

3.) Up to 50 laboratory points per semester can be earned by your attendance and participation in each laboratory activity. Make sure that your TA knows that you are present and are participating in the exercise. Attendance and participation are together worth five (5) points per week.

4.) Up to 50 lab points maximum can be earned by taking the Lab Final Exam, which is composed by your individual laboratory TA.

NOTE: The maximum possible number of Lab Points is 150 points. TAs cannot award you more than 150 points.

SUMMARY OF POSSIBLE POINTS AVAILABLE IN THIS COURSE:

<table>
<thead>
<tr>
<th>Component</th>
<th>Possible Points</th>
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</thead>
<tbody>
<tr>
<td>Lecture Exams</td>
<td>~ 550 points</td>
</tr>
<tr>
<td>Correctly answered Pre-Lab Questions</td>
<td>50 points</td>
</tr>
<tr>
<td>Attendance &amp; Participation in Lab Exercises</td>
<td>50 points</td>
</tr>
<tr>
<td>Lab Final Exam (composed by your individual TA)</td>
<td>50 points</td>
</tr>
<tr>
<td>Total LAB points possible (this is the maximum)</td>
<td>150 points</td>
</tr>
</tbody>
</table>

TOTAL POSSIBLE POINTS AVAILABLE IN COURSE: ~ 700 points

EXTRA CREDIT POINTS: there are ABSOLUTELY NO extra credit points available in this course. Don't even ask.

FINAL GRADES: Your final letter grade will be calculated by dividing your total number of accumulated points from both lecture and lab by the total number of possible points in the course.

The Standard USU grading scheme that will be used to determine your final grade is:

A = 100 % to 93 %
A- = < 93 % to 90 %
B+ = < 90 % to 87 %
B = < 87 % to 83 %
B- = < 83 % to 80 %
C+ = < 80 % to 77 %
C = < 77 % to 73 %
C- = < 73 % to 70 %
D+ = < 70 % to 67 %
D = < 67 % to 60 %
F = < 60 %

SUPPLEMENTAL INSTRUCTION: Supplemental Instruction (S.I.) will be conducted twice per week by the S.I. Leader (Mr. Bjorn Rodriguez). The time and place of S.I. sessions will be announced in class and posted on Canvas.

WEEKLY REVIEW SESSIONS: Weekly reviews of the lecture material will be conducted by the Undergraduate Teaching Fellow (UTF) for the course (Ms. Nicole (Nikki) Anderson). The time and place of the weekly review session will be announced in class and posted on Canvas.

Disability Resource Center: If you have a condition that requires accommodation, please contact Dr. Adams and document your situation through the Disability Resource Center (DRC) during the first week of classes.
**Requests for an incomplete (I) grade** must comply with current USU regulations (see University Catalog).

**LECTURE SCHEDULE.** Lecture topics and dates (and perhaps the order of presentation) are **TENTATIVE** only and will be changed if necessary. Listed page readings correspond to Fox's Human Physiology, 13th edition (Fox13e), which is on reserve at the USU Library.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings in Fox 13e</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 7</td>
<td>Course introduction. Study techniques. How to do well in this class.</td>
<td>pp. 4 - 10</td>
</tr>
<tr>
<td></td>
<td>HINT: ditch the flash cards.</td>
<td></td>
</tr>
<tr>
<td>January 9</td>
<td>Organs &amp; organ systems</td>
<td>pp. 19 - 21</td>
</tr>
<tr>
<td></td>
<td>The four (4) primary tissue types</td>
<td></td>
</tr>
<tr>
<td>January 14</td>
<td>Cell structures &amp; their functions</td>
<td></td>
</tr>
<tr>
<td>January 16</td>
<td>Transport across the plasma membrane</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January 21</td>
<td>Homeostasis &amp; body fluid compartments</td>
<td></td>
</tr>
<tr>
<td>January 23</td>
<td>Central nervous system</td>
<td></td>
</tr>
</tbody>
</table>

**EXAM #1 (worth approximately 120 points) OPENS on Jan. 28 and CLOSES on Feb. 1.**

- January 28 **NO LECTURE** due to Exam #1 this week.
- January 30 Cell resting membrane potential pp. 149 - 153
- February 4 Action potentials pp. 172 - 180
- gap
- February 13 Chemical synaptic transmission pp. 180 - 198
- February 18 Skeletal muscle physiology
- February 13 Endocrine physiology pp. 317 – 331 pp. 677 - 685

**EXAM #2 (worth approximately 140 points) OPENS on Feb. 25 and CLOSES on Feb. 29.**

- February 27 Endocrine physiology, Part Two
- February 20 Hypothalamus & pituitary gland
- February 25 **NO LECTURE** due to EXAM #2 this week.
- February 27 Exocrine & endocrine pancreas pp. 346 – 348

**March 2 - 6** SPRING BREAK! No lectures or labs.

- March 10 Central Nervous System
- March 12 Neuroendocrine System: Hypothalamus & Pituitary Gland
- March 17 Exocrine Pancreas & Endocrine Pancreas
March 19  Diabetes & Adipokines (hormones secreted by fat)      pp. 681 - 685

**EXAM #3** (worth approximately 120 points) **OPENS** on March 24 and **CLOSES** on March 28.

March 24  Respiratory physiology
March 26  The Heart, part one
March 31  The Heart, part two      pp. 331 - 337
April 2   Renal physiology
April 7   Circadian Rhythms & The Pineal Gland
April 9   Digestive System Physiology
April 14  Female Reproductive Physiology
April 16  Male Reproductive Physiology
**April 21**  Stem cells, Reproductive cloning & Therapeutic Cloning

**April 21**  **LAST DAY OF CLASSES**

April 23 - 29  **FINAL EXAMINATIONS**

**EXAM #4** (approximately 100 - 160 points) - This exam **OPENS** on April 23 and **CLOSES** on April 29.

**LABORATORY meeting times**  All labs will be held in LSB 208. **YOU MUST ATTEND ONLY THE SPECIFIC LABORATORY SECTION FOR WHICH YOU ARE OFFICIALLY REGISTERED.**

Mondays  
8:30 AM  
10:30 AM  
12:30 PM  
4:30 PM

Tuesday  
3:30 PM

Wednesdays  
8:30 AM  
10:30 AM  
12:30 PM  
2:30 PM  
4:30 PM

Thursdays  
3:30 PM

Fridays  
8:30 AM  
10:30 AM  
12:30 PM
## LABORATORY SCHEDULE

All labs will be held in **LSB 208**.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>ACTIVITIES</th>
</tr>
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<tbody>
<tr>
<td>January 6 - 10</td>
<td><strong>NO LABS THIS WEEK</strong></td>
</tr>
<tr>
<td>January 13 - 17</td>
<td>Lab Safety and Using Microscopes to Visualize Cells and Tissue (10 points possible)</td>
</tr>
<tr>
<td>January 20 - 24</td>
<td><strong>NO LABS THIS WEEK</strong> (due to <a href="https://en.wikipedia.org/wiki/Martin_Luther_King_Jr._Day">Martin Luther King, Jr. Day</a> on Monday)</td>
</tr>
<tr>
<td>January 27 - 31</td>
<td>Acidity, Alkalinity, pH Indicators, Buffers and Enzyme Function (10 points possible)</td>
</tr>
<tr>
<td>February 3 - 7</td>
<td>Nervous System (10 points possible)</td>
</tr>
<tr>
<td>February 10 - 14</td>
<td>Sensory Organs: Eye &amp; Ear (10 points possible)</td>
</tr>
<tr>
<td>February 17 - 21</td>
<td><strong>NO LABS THIS WEEK</strong> (due to <a href="https://en.wikipedia.org/wiki/Presidents%27_Day">PRESIDENTS’ DAY</a> on Monday, February 17, 2020.)</td>
</tr>
<tr>
<td>February 24 - 28</td>
<td>Sensory Physiology: Hearing test, Taste exercises, Cutaneous Receptors (10 pts.)</td>
</tr>
<tr>
<td>March 2 - 6</td>
<td><strong>SPRING BREAK! No labs or lectures.</strong></td>
</tr>
<tr>
<td>March 9 - 13</td>
<td>Diffusion, Osmosis &amp; Tonicity (10 points possible)</td>
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<tr>
<td>March 16 - 20</td>
<td>Blood Typing, Hematocrits, and Blood Cell Counts (10 points possible)</td>
</tr>
<tr>
<td>March 23 - 27</td>
<td>Respiration and Examination of Pig Hearts and Lungs (10 points possible)</td>
</tr>
<tr>
<td>March 30 - April 3</td>
<td>Electrocardiography, Blood Pressure, and Heart Rate (10 points possible)</td>
</tr>
<tr>
<td>April 6 - 10</td>
<td>Urinalysis (10 points possible). <strong>CONFIRM YOUR LAB POINTS WITH YOUR TA!!</strong></td>
</tr>
<tr>
<td>April 13 - 17</td>
<td><strong>LAB FINAL EXAM</strong> (worth <strong>50 points</strong>) and evaluations of TAs by their students</td>
</tr>
</tbody>
</table>

**NOTE:** During Spring 2020, all classes had moved to asynchronous by March 16. Consequently, we were unable to hold face-to-face laboratories. A demonstration video of the Blood Typing lab was made by some of the TAs, and then it was decided (by me) that it was unsafe to have the TAs continue doing that because it was incompatible with Social Distancing. A recorded lecture on **Sleep Physiology** was substituted to enable students to earn participation points for Labs 8, 9 and 10.