

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

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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:

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:

Lecture Exams:	your total lecture exam scores	~ 550 points
Correctly answered Pre-Lab Questions:	5 points per week over 10 weeks =	50 points
Attendance & Participation in Lab Exercises:	5 points per week over 10 weeks =	50 points
Lab Final Exam (composed by your individual TA):		50 points
Total LAB points possible (this is the maximum):		150 points

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.

Date	Topic	Readings in Fox 13e
January 7	Course introduction. Study techniques. How to do well in this class. HINT: ditch the flash cards.	pp. 4 - 10
January 9	Organs & organ systems	pp. 19 - 21
	The four (4) primary tissue types	pp. 10 - 18
January 14	Cell structures & their functions	pp. 50 - 62
January 16	Transport across the plasma membrane	pp. 132 - 136 pp. 142 - 149
January 21	Homeostasis & body fluid compartments	pg. 21
January 23	Central nervous system	pp. 162 - 171 pp. 153-156 pp. 180 -198

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

January 28	<u>NO LECTURE</u> 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 <u>EXAM #2</u> 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 SCHEDULEAll labs will be held in **LSB 208**.

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

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.