

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

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

Please note that human physiology is an enormous and very complex subject, and we will not be able to cover every aspect of it within a single semester. The instructor aims to stoke 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 held in **VSB 219.**

Instructor: **Brett Adams, Ph.D.**

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Office Hours: **By appointment.** Please contact me by email (brett.adams@usu.edu) and I will be very happy to arrange an appointment.

Course Fees: There is a fee of **\$80** associated with the laboratory portion of this course.

Textbooks: **There is NO required textbook for this course.** I have placed numerous copies of several different human physiology textbooks on reserve within the **USU Library Course Reserves** for your use. If you want to buy your own textbook, I recommend Fox's Human Physiology, 13th edition or later. However, almost any standard human physiology textbook would 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. **Your lowest exam score will be automatically dropped by Canvas and will not count toward your grade.** If you miss an exam, **FOR ANY REASON**, that exam score (zero) will become your dropped exam score. **NO MAKE-UP EXAMS WILL BE GIVEN FOR MISSED EXAMS.** If you miss additional exams, you will also receive scores of zero points for those missed exams, and they will count towards your final grade.

FINAL GRADE: Your final letter grade in this course will be determined by your three (3) highest-scoring lecture exams, plus your total accumulated lab points from the 10 laboratory exercises and the one (1) lab final exam.

Lecture exams will cover material presented during lecture. Each lecture exam will be worth approximately 100 - 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 posted on Canvas. For most lectures, I will use Panopto to capture the lecture. However, technical problems with Panopto,

WHICH ARE BEYOND MY CONTROL, may occasionally prevent this. Because of this possibility, I will routinely make audio-only back-up recordings of lectures, and will post them on Canvas when needed. Please be aware that, occasionally, back-up audio recordings of lecture may not be available.

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

1.) You **MUST** attend the lab section for which you are officially registered, because **ONLY** your official TA is obligated to keep track of your lab points. TAs in other lab sections won't know who you are, and they will **NOT** record your points. Therefore, if you don't attend the lab section for which you are registered, **YOU WILL LOSE POINTS**.

2.) Up to **50 points per semester** can be earned by correctly answering, **before you attend lab**, the **Pre-Lab Questions** (found on the last page of each lab handout, or posted by your TA on the Canvas page for your lab section). If you are answering printed Pre-Lab Questions, be sure to submit them to your TA **when you first arrive in lab** and get your TA to grade and then initialize them. Each set of Pre-Lab Questions is worth up to **five (5) points per week**. **I recommend that you keep your graded/initialized Pre-Lab Questions for your records.**

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

3.) Up to **50 lab 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 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 TA.

SUMMARY OF POSSIBLE POINTS AVAILABLE IN THIS COURSE:

Lecture Exams:	your <i>three highest</i> exam scores =	~ 320 - 360 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 TA):		50 points
Total LAB points:		150 points

TOTAL POSSIBLE POINTS AVAILABLE IN COURSE: ~ **500 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 grading scheme used is:**

A	=	92.5 – 100 %
A-	=	< 92.5 to 89.5 %
B+	=	< 89.5 to 84.5 %
B	=	< 84.5 to 79.5 %
B-	=	< 79.5 to 74.5 %
C+	=	< 74.5 to 69.5 %
C	=	< 69.5 to 64.5 %
C-	=	< 64.5 to 59.5 %
D+	=	< 59.5 to 54.5 %
D	=	< 54.5 to 49.5 %
F	=	< 49.5 %

IMPORTANT INFORMATION about the grading scheme: Please note that my grading scheme is considerably more generous than the USU Standard grading scheme. Additionally, my grading scheme has a **0.5% bonus** built into it. For example, the break point between a B- and a B grade occurs at 79.5% instead of at 80%. For these reasons, **I WILL NOT CHANGE YOUR FINAL GRADE EVEN IF YOU ARE VERY CLOSE TO THE NEXT HIGHER GRADE.** For example, if your total percentage point score is 92.49999 %, you will get a final grade of "A-" and not "A".

SUPPLEMENTAL INSTRUCTION: Supplemental Instruction (S.I.) sessions will be conducted twice per week by Ms. Sara Munns. The time and place of the bi-weekly S.I. sessions will be announced in class and posted on Canvas.

WEEKLY REVIEW SESSIONS: Weekly review sessions will be conducted by Mr. Daniel Schouten. The time and place of the once per week review session will be announced later 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 order of presentation are tentative only and may be changed. Listed page readings correspond to Fox's Human Physiology, **13th edition (Fox13e), which is on reserve at the USU Library.**

<u>Date</u>	<u>Topic</u>	<u>Readings in Fox 13e</u>
August 28	Course introduction. Study techniques. How to do well in this class.	pp. 4 - 10
August 30	The four (4) primary tissue types Organs & organ systems	pp. 10 - 18 pp. 19 - 21
September 4	Cell structure & function	pp. 50 - 62
September 6	Transmembrane transport	pp. 132 - 136 pp. 142 - 149
September 11	Homeostasis & body fluid compartments	pg. 21
September 13	Resting membrane potential	pp. 149 - 153
September 18	<u>EXAM #1 (approximately 120 points)</u>	
September 20	Action potentials	pp. 172 - 180
September 25	Chemical synaptic transmission	pp. 180 - 198
September 27	Central nervous system	pp. 162 - 171 pp. 153-156; pp. 180 -198
October 2	Skeletal muscle physiology	
October 4	Endocrine physiology	pp. 317 – 331 pp. 677 - 685
October 9	Exocrine & endocrine pancreas	pp. 346 – 348
October 11	The hypothalamus & pituitary gland	
October 16	<u>EXAM #2 (approximately 140 points)</u>	
October 18	Diabetes & Adipokines (i.e., hormones secreted by fat)	pp. 681 - 685
October 23	Respiratory physiology	

October 25	Respiratory physiology	
October 30	Cardiac physiology	pp. 331 - 337
November 1	Cardiovascular system	
November 6	Renal physiology	
November 8	The digestive system	
November 13	<u>EXAM #3 (approximately 140 points)</u>	
November 15	Circadian rhythms & The Pineal Gland	
November 20	Sleep Physiology	
November 22	<u>NO CLASS</u> - Thanksgiving holiday.	
November 27	Male Reproductive Physiology	
November 29	Female Reproductive Physiology (guest speaker: Ms. Marley Haupt)	
December 4	Stem cells, Reproductive cloning & Therapeutic Cloning	
December 6	To be determined	
December 11	<u>EXAM #4 (TUESDAY, Dec. 11, 2018 at 9:30 AM).</u> <u>NOT COMPREHENSIVE.</u> ~ 120 points.	

LABORATORY SECTION BEGINNING TIMES (all labs will be held in VSB 219)

Mondays & Wednesdays	9:30 AM, 11:30 AM, 1:30 PM, 3:30 PM, 6:00 PM, and 8:00 PM
Fridays	9:30 AM, 11:30 AM, 1:30 PM, 3:30 PM and 6:00 PM

THE SCHEDULE OF LABORATORY EXERCISES IS ON THE FOLLOWING PAGE

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LABORATORY SCHEDULE**ALL LABORATORIES will be held in VSB 219.**

August 27, 29 & 31	<u>NO LABS</u> during this first week of classes.
September 3, 5 & 7	<u>NO LABS</u> this week due to <u>LABOR DAY</u> on MONDAY, September 3rd.
September 10, 12 & 14	Lab Safety and Using Microscopes to Visualize Cells and Tissue (10 points possible)
September 17, 19 & 21	Acidity, Alkalinity, pH Indicators, Buffers and Enzyme Function (10 points possible)
September 24, 26 & 28	Nervous System (10 points possible)
October 1, 3 & 5	Sensory Organs: Eye & Ear (10 points possible).
October 8, 10 & 12	Sensory Physiology: Hearing test, Taste exercises, Cutaneous Receptors (10 pts.).
October 15, 17 & 19	<u>NO LABS THIS WEEK</u> , due to <u>FALL BREAK DAY</u> on Friday, October 19th.
October 22, 24 & 26	Diffusion, Osmosis & Tonicity (10 points possible)
October 29, 31, Nov. 2	Blood Typing, Hematocrits, and Blood Cell Counts (10 points possible)
November 5, 7 & 9	Respiration and Examination of Pig Hearts and Lungs (10 points possible)
November 12, 14 & 16	Electrocardiography, Blood Pressure, and Heart Rate (10 points possible).
November 19, 21 & 23	<u>NO LABS THIS WEEK</u> , due to <u>THANKSGIVING HOLIDAY</u>
November 26, 28 & 30	Urinalysis (10 points possible). <u>CONFIRM</u> your total lab points with your TA!
December 3, 5 & 7	<u>LAB FINAL EXAM</u> (worth 50 points) and TA evaluations by students