

**Human Physiology BIOL 242/2420-070 Course Syllabus**  
**Spring 2019 Tues/Thurs 6:00-8:00pm University of Utah Sandy Center R201**  
**10011 Centennial Pkwy #100, Sandy, UT 84070**

**Course Description:** Principles of Human Function.

**4 credits** (credit for BIOL 2420 only): Lecture and Discussion

Prerequisites: C- or better in BIOL 1210 OR AP Biology score of 4 or better AND CHEM 1110 OR CHEM 1210 OR CHEM 1211 OR AP Chemistry score of 4 or better.

See documentation in the University of Utah General Catalog:

<https://catalog.utah.edu/#/courses/view/5bbe6057f05db82e00c35547>

**Instructor:** Dr. Elizabeth (Beth) Vitalis [elizabeth.vitalis@utah.edu](mailto:elizabeth.vitalis@utah.edu)

**Office Hours:** by appointment Tues/Thurs 4:30-5:30pm, or after 8pm, Sandy site  
E-mails are welcome anytime, and I will aim to respond within 24 hours.

**Teaching Assistants:** Erika Brcko, Wendy Odell, Nick Santa Ana, Alec Van Detta

**TA-led discussion and review sessions:** TBD

**Required Materials:**

**Textbook and associated software:** *Human Physiology, an Integrated Approach*, 8<sup>th</sup> ed by Silverthorn with Mastering A&P software Access Code are available at the University of Utah Sandy bookstore or Main campus store. Reading assignments and Mastering A&P homework are included in the class schedule. The latest version of this text is not necessary, and it may be in any format: loose-leaf, bound, or electronic. However, the Mastering A&P software will need to be purchased separately if not included with your text. The new copies of the text at University of Utah bookstores that are designated for BIOL 2420\_070 are packaged with Mastering A&P access codes, and it added \$30 to the textbook price. Purchasing Mastering A&P separately is \$69, \$116 with an e-text that could substitute for a hard-copy if this works for your study habits. If purchasing a book at the main campus bookstore, please be sure you are selecting the version of the text under this section, as other related texts may not include the Access Code.

**Human Physiology Course Objectives:**

Our goal is that at the end of this course you will:

1. Be able to describe how the human body functions at the molecular, cellular, tissue, organ, and systemic levels.
2. Appreciate how physiology is intertwined with other disciplines. (eg chemistry, physics, math)
3. Explain the function and processes of the endocrine, nervous, muscular, cardiovascular, pulmonary, urinary, digestive, immune, and reproductive systems.
4. View the human body as an integration of organ systems and understand how its function depends upon metabolism, signaling and transport mechanisms, negative feedback, and homeostasis. Relate these concepts to real-life scenarios.
5. Be able to predict the consequences of homeostasis disruption and know how this leads to pathological states.
6. Demonstrate critical thinking skills, and appreciate how our physiological knowledge has been obtained through the scientific method.

7. Be able to solve quantifiable physiological problems, particularly pertaining to volumes, flow rates, pressures, and other values related to the functioning of the human body.
8. Have enjoyed lively and respectful interactions with classmates as you learn together.
9. Be better prepared for further college coursework and your career and life ambitions.

See also Expected Learning Outcomes for Biology degrees

<http://learningoutcomes.utah.edu/department-program/59>

**Course Structure:** This class will use a variety of teaching and learning strategies. This is your class, and I aim to provide opportunities for you to challenge yourself and to contribute to the entire class learning experience. In-class activities will involve lecture, discussions, demonstrations, group activities, clicker questions, and exams that are designed to help you learn and apply the physiological concepts, as well as to foster desire and skills for life-long, meaningful learning. Active participation of every student is expected in the class, and mutual respect will guide all interactions amongst students and instructor. Graded out-of-class assignments include online homework and case studies.

The University of Utah recommends 2-3 hours of study outside of class for each credit hour. This will be 8-12 hours per week for this class. My advice is to read the relevant pages in the text prior to class and be sure to study all figures and diagrams. Do the Reading Quiz after reading the chapter as a means to test yourself. Before the next class, review your notes, correlate with the chapter learning objects and consult the text to solidify your understanding. Make note of specific questions that arise.

Questions may be e-mailed to me or you may arrive early, as I plan to be in the classroom at least 30 minutes prior to class. Please feel free to ask questions or provide input at any time during class session, yet do realize that significant divergences from our topic at hand may be deferred to out-of-class dialogue.

Our volunteer **Teaching Assistants**, will lead optional discussion/review sections at times and days TBD. Details will be provided in class.

**Course Prerequisites:** For this course, a basic understanding of general biology, introductory chemistry, and college algebra is expected. BIOL 2420 prerequisites are listed at the top of this syllabus. Since the entire class has a Biology and Chemistry foundation, this enables us to bypass discussing much of the material in the beginning of the text. Previous or current enrollment in BIOL 2325 (Anatomy) and BIOL 2325 (Physiology Lab) are not required.

### **Course Information:**

**Class website on Canvas:** This syllabus, schedules, powerpoint lectures, learning objectives, assignments, practice worksheets, supplementary links, announcements, your grades, and other information will be posted on our class website. <https://utah.edu/students/>. Click "My Classes" on the right side, log-in, then click on BIOL 2420. If needed, assistance may be found on the Canvas Support page or you may call 801-581-6112. Periodically, I will post announcements on Canvas, so please check daily, if possible. You may set your Canvas notifications so that you receive Announcements by e-mail.

**Assignments and Evaluation** (slight modification throughout the semester is possible):

**Three mid-term exams and one final exam** will be worth 100 points each. These exams will be approximately 60% objective multiple choice, matching, labeling diagrams, etc and 40% short

essay, diagrams, drawings, or problem solving. The exams are based heavily on **Learning Objectives (LOs)** that are posted for each chapter. You are encouraged to fill in the LOs as we go along, as you likely will discover this is a valuable study tool for the exams and will help you retain the information for the future. Due to enforced prerequisites, many LOs for Chap 2, 3, and 4 will be minimally covered and tested as they ought to be review (Details will be provided in class) Check your mastery of these topics (eg chemistry, basic cell biology) and consult the posted slides and text as needed. Although these topics will not be directly tested, your comprehension of them will be essential for you to understand more advanced physiology concepts. As we go along, some LOs may be altered due to time constraints and/or student interest.

The three mid-terms exams will be held during regular class session, and the fourth exam during Final Exam period. They will non-cumulative, yet be aware that class material continues to build upon previous topics. Taking an exam early or late may be pre-arranged within 7 days, yet note that make-up exams for unplanned missed classes will only be given if the reason for missing class is extremely severe and documented, if notice is given prior to the scheduled exam time, and if you have not already used this privilege this semester.

Exam rules include:

- Students remain in the class during the exam unless given permission by the instructor or TA.
- Cell phones will be turned off and out of sight. Use of a cell phone, unauthorized calculator, or other device during an exam will result in a 0.
- No talking or interacting with other students.

Mid-term exam dates: **Tues Feb 5, Thurs Feb 28, Thurs March 28**

Final Exam: **Thurs April 25**

**Exam re-grades:** If you believe one or more of your answers were incorrectly graded, you may submit your exam for re-grade within 7 days of exam return. It must not be altered in any way and be accompanied with a re-grade form that will be provided. Note that the entire exam will be re-graded, which may result in a higher or lower score.

**Mastering A&P Homework Assignments:** Online homework assignments will be due each Tues and Thurs at 6p, worth 4 pts each. The homework assignment includes dynamic tutorials, video clips and a range of question types and will help you master the chapter material that will be covered in class the day the homework is due. Most questions allow up to 3 retakes increasing the ease to gain full credit. The intent is to get you engaged in the course content and to have opportunity to apply some of the concepts to real world situations. The lowest three 4 point homework assignments will be dropped. Please do not ask for an extension for an assignment if you missed the deadline. This will be one of your drops. In order to capture points for this homework, you will need to create an account in MasteringA&P using your Access Code. Click the MasteringA&P link on the Home page and follow the instructions. There may be material covered on MasteringA&P that is not covered in detail in class, yet important to understanding the concepts we do cover. See MasteringA&P Assignment description for more details.

**Five assignments based on Case Studies:** Case studies are an effective way to learn the importance of physiological concepts and practice problem solving, and throughout the semester we will do five of them. These will involve reading a 'real-life' scenario that poses physiological questions, class discussions and a 3-4 page report that will typically be due the class session following the in-class discussion. Each case study is worth 20 points for a total of 100 points toward the final score. The exact case studies will be established as I better understand the

collective interests of the class. Upload submissions will be through Turnitin system on Canvas. Late case studies may be accepted if situations are severe, subject to 20% drop per day.

**Reading Assignments:** Reading of the text outside of class is expected and will reflect upon your reading quiz and exam scores, and more importantly, contribute to your understanding of Human Physiology. MasteringA&P assignments are designed to enrich your reading of the text, so you may find it most effective to read the text and complete the homework in the same study session. We will not cover all topics in-depth, and when relevant, I will guide your out of class reading by providing specific pages for your focus. The Concept Check questions at the end of each section in the text are a useful way to test your mastery of the topics. Figures are important, so do not skip the Figure legends.

**Practice Worksheets** are not graded, yet provide additional practice at mastering some of the more challenging physiological concepts. These are ideally completed while participating in Interactive Physiology tutorials available as part of the Mastering A&P suite. Answers are provided separately.

**Evaluation Criteria:** Here is how grading will break down on a point system converted to % for final grade: Total points possible may change through the semester, yet % needed for given grade will remain consistent.

- Introductory Assignments                    **12**
  - Exams    **400** pts (3 exams x 100 pts)
  - Mastering Biology Homework                **88** 25 assignments (minus 3) X 4 pts
  - Case Studies                                      **100** (5 case studies x 20 pts)
- Total possible =            **600 points**

Bonus points will be available through participation in in-class activities ~0.5 pt/week and occasional bonus pts on exams.

There will be NO extra credit given at the end of the semester to help boost students to the next grade level.

**Your grade is your own responsibility, and every student has the same opportunities to earn points.** Explaining to me that you need a certain grade to get into your program of choice will NOT help. Focus on mastering the physiology concepts so that you will be sufficiently prepared for your career of choice or other life endeavors. This strategy has a better chance of landing you a spot in your selected program or getting your dream job than asking or pleading for the grade you need. Plus, it is far better for your self-esteem and competence.

Final grades for the course will be calculated based on the percentage (%) of total possible points earned throughout the semester. Grades will be assigned using the following matrix. Note that %'s are NOT rounded up to the next grade level. eg. 89.9% = B+ Adjustments may be made if overall class scores are low, yet you are guaranteed the grade based on the below scale.

Grade	A	A-	B+	B	B-	C+	C	C-	D	E
Cumulative pts % of total pts is = or >	95	90	87	83	80	77	73	70	60	<60

**An incomplete grade** for the semester will only be given in the event of an unfortunate event that may occur near the end of the semester, and only if the you are passing with a C at the time of the crisis and have completed 80% of the course. The terms of completing the grade will be a

contract between instructor and student. You can read about UU grading and incomplete policy here: <https://regulations.utah.edu/academics/6-100.php>

**Attendance:** The first day of class is **Tuesday Jan 8**, and the last is **Tues April 23** Final exam on **Tuesday April 30**. The University expects regular attendance at all class meetings, as do I. If an absence is unavoidable, it is your own responsibility to check with classmates or Canvas for notes and any assignments or announcements that you may have missed. Please do not e-mail me to ask if you will miss a bonus activity if you do not come to class. Missed exams and late assignments resulting from absence will directly affect your total score, and furthermore, lack of participation degrades your learning experience.

**Other important dates:**

**Friday Jan 18: Last day to add or drop the class.** **Friday March 1: Last day to drop the class with a withdrawal** on your transcript. If you fail to withdraw by March 1, a letter grade will be assigned based on cumulated points.

**No class: Tues March 12 and Thurs March 14 Spring Break**

**Tutoring:** Please know that I am readily available by e-mail or appointment for consultation to assist you in understanding the course material and to gauge your progress. In addition, I am happy to provide guidance on career pursuits or other topics, as my goal as an instructor is to help you grow as a well-rounded, informed, and responsible student.

On-campus personal tutoring is available through the ASUU tutoring center.  
<https://tutoringcenter.utah.edu/>

**The Biology Learning Center** on the 1<sup>st</sup> floor of the Bio Building has posted hours for course specific drop-in tutoring. <http://www.biology.utah.edu/BLC/Index.php>

**Student Conduct:** Mutual respect is a priority rule in this classroom. Any activity that affects other students will not be tolerated. Private discussions while the instructor or another student 'has the floor' are disrespectful and hinder the learning experience for the entire class.

**Cell Phones:** Cell phones must be in silent mode upon entering the lab or lecture. No text messaging allowed during class. Infractions of these rules may result in point deductions.

**Personal Computers** may be used for the purpose of taking notes, however, no e-mail or internet use during class unless it is a component of the class assignment.

**Integrity and Code of Student's Rights and Responsibility:** Any student caught cheating on an assignment or exam will receive a failing grade for the course and the matter will be turned over to the appropriate student disciplinary committee. Plagiarism is a serious matter, and learning depends on carrying out your own critical thinking. Studying with classmates is encouraged, yet each student must have original answers. For a detailed description of the university policy on cheating and plagiarism and all topics related to Students Rights and Responsibilities, please see the University of Utah Student Code and Regulations described here: <http://regulations.utah.edu/academics/6-400.php>

**University of Utah drop and withdrawal dates** are on the class schedule. Also see <http://registrar.utah.edu/academic-calendars/index.php>

**Detailed schedule of lecture topics, MasteringBiology, practice worksheets, and other assignments** will be available and kept current on our Canvas site.

## University of Utah Policies and Resources:

**English language learners:** several resources on campus that will support you with your language and writing development. These resources include: the Writing Center <http://writingcenter.utah.edu/> the Writing Program <http://writing-program.utah.edu/> the English Language Institute <http://continue.utah.edu/eli/> Please let me know if there is any additional support you would like to discuss for this class.

**Disability Accommodations:** As per The Americans with Disabilities Act, the University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services <http://disability.utah.edu/> The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 801-581-5020. CDS will work with you and the instructor to make arrangements for accommodations.

**Discrimination and Harassment policies:** There will be zero tolerance for any Discriminatory or Harassing behavior or Sexual Misconduct. Please see Student Bill of Rights, section E <http://regulations.utah.edu/academics/6-400.php>

**Sexual Misconduct Policies:** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

**Wellness:** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness; [www.wellness.utah.edu](http://www.wellness.utah.edu) 801-581-7776.

For information on the LGBT Resource Center, see: <http://lgbt.utah.edu/lgbtrc-programs/safe-zone.php> If you are a student veteran, the Veterans Support Center in Room 1651 in the Olpin Union Building is available. See <http://veteranscenter.utah.edu/> for more information and let me know if you need additional support.

(Course Schedule starts on the next page)

**Schedule Human Physiology BIOL 242/2420\_070 Spring 2019**

**Instructor: Vitalis**

**Lecture Tues(T)/Thurs(H) 6:00-8:00PM Sandy 201**

**Subject to Modification**

DATE	TOPIC	READINGS from Silverthorn/ASSIGNMENTS MP= MasteringA&P
Jan 8 T	Introductions, Syllabus/Schedule Intro to Human Physiology	Ch 1
Jan 10 H	Molecular Interactions, Biochemistry Protein Folding Activity	Ch 2 Questionnaire due
Jan 15 T	Review of Cells and Tissues Energy and Cellular Metabolism	Intro to MP, Ch 4 MP: Energy and Metabolism
Jan 17 H	Membrane Dynamics	Ch 5 MP: Membrane Dynamics
Jan 18 F	<i>Last day to add, drop (delete), elect CR/NC, or audit classes</i>	
Jan 22 T	Finish Membrane Dynamics Communication and Integration	Ch 6 MP: Communication, Integration, and Homeostasis Fadkins Case Study due
Jan 24 H	Homeostasis Introduction to Endocrinology	Ch 6 Ch 7 MP: Intro to Endocrinology
Jan 29 T	Endocrinology; Hormone Activity Begin Neurons: Electrical Properties	MP: Neurons Ch 7 (parts of Ch 23)
Jan 31 H	Neurons: Electrical Properties and Synapses Action Potential Activity	Ch 8 MP: Synapses Neg Feedback Case Study due
<b>Feb 5 T</b>	<b>Exam 1 Ch 1, 2, 4, 5, 6, 7, 8</b>	
Feb 7 H	Central Nervous System Begin Sensory Systems	Ch 9, 10 MP: CNS
Feb 12 T	Sensory Systems Vision Activities	Ch 10 MP: Sensory Systems
Feb 14 H	Efferent Division NS	Ch 11 MP: Efferent NS
Feb 19 T	Begin Muscle Physiology	Ch 12 MP: Muscles I
Feb 21 H	Muscle Physiology Muscle Contraction Activity	Ch 12 MP: Muscles II
Feb 26 T	Control of Body Movement Reflex Activity Start Cardiovascular System	Ch 13 MP: Body Movement All or Nothing Case Study Due

<b>Feb 28 H</b>	<b>Exam 2 Ch 9, 10, 11, 12, 13</b>	
<b>Mar 1 F</b>	<i>Last Day to Withdraw with a W</i>	
Mar 5 T	Cardiovascular Physiology	Ch 14, 15 MP: Heart
Mar 7 H	Circulatory System: Blood Flow and Pressure, Blood Pressure Measurements Activity	Ch 15 MP: Blood Flow and Pressure
<b>March 11-15 Spring Break!</b>		
Mar 19 T	Capillary Dynamics Blood Start Respiratory System	Ch 16 MP: Blood Hot Tub Case study due
Mar 21 H	Respiratory System: Pulmonary Ventilation Breathing activities	Ch 17 MP: Pulmonary Ventilation
Mar 26 T	Respiratory System: Gas Exchange and Transport Spirometry Activities	Ch 18 MP: Gas Exchange and Transport Friend In Need Case Study Due
<b>Mar 28 H</b>	<b>Exam 3 Ch 14,15,16,17,18</b>	
<b>Apr 2 T</b>	Urinary System: Kidney Function	Ch 19 MP: Kidneys
Apr 4 H	Electrolyte and Fluid Balance Acid Base Balance CO <sub>2</sub> -> H <sup>+</sup> activity	Ch 20 MP: Fluid and Electrolyte Balance
Apr 9 T	Digestive System	Ch 21 MP: Digestive System
Apr 11 H	Metabolism Glucose Measurement Activity Calcium Balance	Ch 22, 23 MP: Metabolism and Energy
Apr 16 T	Immune System	Ch 24 MP: Immune System
Apr 18 H	Reproductive System	Ch 26 MP: Reproductive Syst
Apr 19 F	<i>Last day to reverse a CR/NC</i>	
Apr 23 T	Exercise Physiology Case study (not tested)	Due online Sat April 27 at 11:59pm
<b>April 25 H</b>	<b>Exam 4 Ch 19, 20, 21, 22, 23, (Ca<sup>++</sup> Balance) 24, 26 during Final Exam period 6-8pm</b>	