BIOLOGY 121 - HUMAN PHYSIOLOGY
SPRING 2020
SYLLABUS

Instructor: Candi K. Heimgartner  Lab Coordinators: Vivian Crow and Emily Gatchell
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Office Hours: Monday and Friday 9-11am
By Appointment
During scheduled lab sessions

Prerequisite: Biology 120 - Human Anatomy (or other approved course) is required as a prerequisite for this course. If you have not met this requirement, please see me immediately. One semester of college chemistry is recommended but not required.

Textbook: McGraw Hill Connect Plus Inclusive Access for Saladin, Kenneth, “Anatomy & Physiology: The Unity of Form and Function”, 8th ed., 2018, McGraw Hill Publishing. This is inclusive access that you should already have if you took Biol 120 fall semester 2019. If you did not take Biol 120 in fall semester 2020, please contact me ASAP for access. This will give you access to online homework and extra credit assignments, study modules, interactive physiology software, and an E-Book, therefore, access is required for this course. You will have the option to pay a small fee for a print copy of the lecture text if you wish. Diagrams, lecture material and related exam questions may be taken from this text for use during the course. Lab Text: Required: Heimgartner, Candi, “Laboratory Manual for Human Physiology”, Kendall Hunt Publishing, 2nd Edition, 2012.

Course Objectives: This course will provide a basic overview of human physiology. For the students pursuing careers in the Allied Health Sciences and Physical Science curriculums, this course will be your primary exposure to human physiology. It is important to learn how the healthy body functions before you can learn in future classes how disease and injury impair function. The goal of this course is to provide a fundamental background in human physiological function to enable you to be successful in an allied health career, future exams and future courses related to physiology. It is important to remember that physiology is the study of function and therefore strict memorization will not enable you to master the material in this course. You will need to be able to think critically about the material and apply learned concepts to physiological situations. A strong background in human anatomy is a must for success in this course and I will teach the course under the assumption that you have met the prerequisite requirement and are comfortable with your knowledge of human anatomy.

Course Learning Outcomes: In accordance with UI Learning Outcomes, it is expected that students will:

• Learn & Integrate: Students will apply their previous and gained knowledge of the human body to gain a basic understanding of physiological processes.

• Think & Create: Students will be expected to apply the concepts and approaches learned here to solve future anatomical, physiological, and academic problems.
• Communicate: Students will be expected to better communicate with others using the vernacular and nomenclature of human physiology.

• Clarify Purpose & Perspective: It is expected that all students will gain important insights into the human body and the physical world that helps to support physiological study.

• Practice Citizenship: It is every student’s responsibility to share their knowledge and appreciation of the human body and its physiological functioning.

This course is offered in the Department of Biological Sciences, College of Science, University of Idaho, Moscow, Idaho. This course and the instructor will comply with all Federal, State, and University laws, rules, and policies. These include, but are not limited to the following:

• Academic Integrity
  o I will not tolerate any form of cheating in this course, either in lecture or lab. Any individual that is observed cheating by the teaching assistants or myself will be dealt with according to the university regulations.

• Students with Disabilities/Disabilities Support Services
  o Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through Disability Support Services located in the Idaho Commons Building, Room 306 in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course. Specific forms will be required!

• Discrimination

• Classroom Civility
  o In any environment in which people gather to learn, it is essential that all members feel as free and safe as possible in their participation. To this end, it is expected that everyone in this course will be treated with mutual respect and civility, with an understanding that all of us (students, instructors, professors, guests, and teaching assistants) will be respectful and civil to one another in discussion, in action, in teaching, and in learning. Should you feel our classroom interactions do not reflect an environment of civility and respect, you are encouraged to meet with your instructor during office hours to discuss your concern. Additional resources for expression of concern or requesting support include the Dean of Students office and staff (5-6757), the UI Counseling & Testing Center’s confidential services (5-6716), or the UI Office of Human Rights, Access, & Inclusion (5-4285).

• Family Educational Rights and Privacy Act (FERPA)

• Emergency Management

• Weapons
  o "The University of Idaho bans firearms from its property with only limited exceptions. One exception applies to persons who hold a valid Idaho enhanced concealed carry license, provided those firearms remain concealed at all times. If an enhanced concealed carry license holder’s firearm is displayed, other than in necessary self-defense, it is a violation of University policy. Please contact local law enforcement (call 911) to report firearms on University property."

Students are expected to adhere to the University of Idaho Student Code of Conduct. If you have any questions or concerns regarding these topics, please contact the administrative offices of the University of Idaho. http://www.uidaho.edu/about/administration
Cell Phone and Computer Use: Cell phone use during both lecture and lab sessions are prohibited unless specified by the course instructor. All cell phones must be turned off and stored prior to entering the lab or lecture hall unless otherwise instructed. Failure to do so may constitute your dismissal from the course or a failing grade. Portable computers may be used ONLY with the prior approval of the instructor. Any unauthorized use of portable computers or cell phones during lecture or lab may constitute your removal from the course or a failing grade. Computer stations will be provided for lab work in the laboratory and cell phones will be used on occasion for calculation and timing purposes only.

Exams and Grading: This course is designed around a 50 minute lecture three times a week as well as an associated laboratory portion of one 3 hour session per week. The lecture will present material related to physiological function while the lab will be used to demonstrate these functions or provide more detail of a specific process. Your grade in this course will be based on: five multiple choice lecture exams worth 100 points each, one final exam worth 100 points, three lab exams (two worth 50 points each and one worth 100 points), 90 points of lab quizzes, 10 points of lab practical demonstration of blood pressure, 150 points of online homework assignments through Connect Plus, attendance, or in class assignments. Any attendance or in class assignments will require that you are present for these points. There is a total of 1000 points for this course.

Due to the nature of human physiology, each lecture exam is considered comprehensive. This means that in order to understand how the kidney functions, you must have a solid background in cellular function and membrane transport mechanisms.

In order to reschedule an exam, you MUST have an official university excused absence. This is limited to athletic travel and doctor recommended absences ONLY. If you need to miss an exam for ANY other reason, this is your choice. If you have any questions about this policy, you MUST contact me at least ONE WEEK BEFORE the scheduled exam. Not showing up for an exam means that you earn a zero. Any rescheduled exams time and format will be at the discretion of the instructor. If you have a documented excused absence, you will be given ONE opportunity to make up missed work. If you are absent for any reason from this granted make up opportunity, you will receive zero points for the assignment/exam/quiz and no other make up opportunities will be allowed.

Lab exams cannot be rescheduled outside the week of exams regardless of circumstances. In order to take a lab exam in an alternate section, you must contact me, in writing, at least one week prior to the scheduled exam. Lab exams will include both written and procedural questions.

If you think that your exam was incorrectly graded, you must submit your concern to me IN WRITING no more than three class days following the exam. I will NOT entertain verbal requests for additional points, but I would be happy to recheck your exam if you submit your request in writing in a timely manner. Grading concerns must be typed, in a memo format and contain the question number, all answer choices, and explanation of the concern. These will be returned following the submission deadline for each exam. Grading concerns may NOT be submitted via e-mail. The comprehensive lecture final, lab exam III, writing assignments and quizzes are exempt from this grading concern submission policy.

Any subsequent concerns or policies concerning grading and exams may be found in your student handbook and corresponding catalog for reference. These publications will be referred to concerning any other aspects of examinations and student grades.

Lab Fees: these may be reimbursed only if the course is dropped within the first two weeks of the semester. A credit to your account will automatically be processed by Accounting Services
**Suggestions for Success:** This course is very fast paced and integrated. It is therefore very important that you keep up with study of the material. If you fall behind, I suggest dropping the course. It is extremely difficult to catch up in a course that builds on presented topics throughout the semester.

I suggest reading the chapter summaries before attending the lecture on the material. Don’t worry about the details in the chapters, we will cover those in lecture. After attending the presentation, I suggest THEN reading the chapter front to back, reviewing your lecture notes at the same time. Highlight or otherwise note key concepts during this phase of study.

**Teaching Assistants:** Most of the teaching assistants who will work with you in the laboratories are students like you; they have volunteered and have been personally selected by the instructor to help you in this course. This fact alone makes this course unique. The qualification for a teaching assistant is to have successfully completed the course in a prior semester with a grade of a B or better. The teaching assistants are expected to treat you with respect and to be as helpful to you in the laboratory as possible. I expect the same respect from you as a student when dealing with teaching assistants. I will not tolerate any rudeness, harassment of any kind, intimidation or any form of discrimination directed at these teaching assistants. These TAs are invaluable to you in that they can provide learning techniques that proved successful for them in the past and can provide more individual attention than is possible of the instructor alone. I will attend each lab session as my schedule permits and work directly with you and the TAs. However, due to scheduling, I may not be able to attend all lab sessions, so become familiar with your teaching assistant for help and learning tools. If you have any problems with the TAs, see me ASAP.

### BIO 121 – HUMAN PHYSIOLOGY
#### TENTATIVE LECTURE SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Wednesday 1/15</td>
<td>Introduction and Chapter 1 - Human Structure and Function (pp. 11-18;21)</td>
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<tr>
<td>Friday 1/17</td>
<td>Chapter 3 - Cellular Form and Function (pp. 76-88)</td>
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<tr>
<td>Monday 1/20</td>
<td><strong>Martin Luther King Day - No Classes</strong></td>
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<tr>
<td>Wednesday 1/22</td>
<td>Chapter 3 - Membrane Transport (pp. 80-97)</td>
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<tr>
<td>Friday 1/24</td>
<td>Chapter 3 - The Cellular Interior (pp. 98-107)</td>
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<tr>
<td>Monday 1/27</td>
<td>Chapter 12 - Properties of Neurons and Neuroglia (pp. 433-442)</td>
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<tr>
<td>Wednesday 1/29</td>
<td>Chapter 12 - Electrophysiology of Neurons (pp. 443-451)</td>
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<td>Friday 1/31</td>
<td>Chapter 12 - Synapses and Neural Integration (pp. 451-463)</td>
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<tr>
<td>Monday 2/3</td>
<td>Chapter 12 Continued</td>
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<td>Wednesday 2/5</td>
<td><strong>Exam I - Chapters 1, 3, and 12</strong></td>
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<td>Friday 2/7</td>
<td>Chapter 11 - Nerve-Muscle Relationship (pp. 402-411)</td>
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<td>Monday 2/10</td>
<td>Chapter 11 - Behavior of Whole Muscles (pp. 412-420)</td>
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<tr>
<td>Wednesday 2/12</td>
<td>Chapter 14 - Integrative Functions of the Brain (pp.518-527)</td>
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<td>Reticular Formation/Cerebellum/Forebrain</td>
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<tr>
<td>Friday 2/14</td>
<td>Chapter 14 - Integrative Functions of the Brain (pp. 527-532)(pp. 463-464)</td>
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<td>EEG/Sleep/Cognition/Memory/Emotion</td>
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<td>Monday 2/17</td>
<td><strong>President’s Day - No Classes</strong></td>
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<tr>
<td>Wednesday 2/19</td>
<td>Chapter 14 - Integrative Functions of the Brain (pp. 532-537)</td>
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<td>Sensations/Motor Control/Language/Lateralization</td>
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<tr>
<td>Friday 2/21</td>
<td>Chapter 14 Continued</td>
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Monday 2/24  Exam II - Chapters 11 and 14
Wednesday 2/26  Chapter 15 - Physiology of the ANS (pp. 555-565)
Friday 2/28  Class Cancelled for Jazz Festival (use of classroom)
             WATCH Online videos/Work on Homework and Extra Credit Modules

Monday 3/2  Chapter 15 - ANS Effects on Target Organs (pp. 565-570)
Wednesday 3/4  Chapter 16 - PNS Receptors and Pain (pp. 576-584)
Friday 3/6  Chapter 16 - Hearing and Equilibrium (pp. 589-602)

Monday 3/9  Chapter 16 - Hearing and Equilibrium - Continued
Wednesday 3/11  Chapter 16 - Vision (pp. 603-620)
Friday 3/13  Chapter 16 - Vision - Continued

Monday 3/16  Spring Break - No Classes
Wednesday 3/18
Friday 3/20

Monday 3/23  Chapter 17 - Physiology of the Endocrine System (pp. 627-646)
Wednesday 3/25  Chapter 17 - Hormones and Their Actions (pp. 647-657)
Friday 3/27  Exam III - Chapters 15, 16, and 17

Monday 3/30  Chapter 19 - Electrical and Contractile Activity of the Heart (pp. 718-724)
Wednesday 4/1  Chapter 19 - Cardiac Physiology (pp. 725-734)
             Blood Flow/Heart Sounds/Cardiac Cycle/Cardiac Output
Friday 4/3  Class Cancelled - Work on Homework/Extra Credit Modules

Monday 4/6  Chapter 20 - Blood Pressure, Resistance, Flow (pp. 750-756)
Wednesday 4/8  Chapter 20 - Capillary Exchange and Venous Return (pp. 756-763)
Friday 4/10  Chapter 20 Continued

Monday 4/13  Exam IV - Chapters 19 and 20
Wednesday 4/15  Chapter 22 - Physiology of Respiration/Pulmonary Ventilation (pp. 857-868)
Friday 4/17  Chapter 22 - Gas Exchange and Transport (pp. 868-878)

Monday 4/20  Chapter 23 - Urinary System - Glomerular Filtration (pp. 887-889, 895-901)
Wednesday 4/22  Chapter 23 - Tubular Reabsorption and Secretion (pp. 901-908)
Friday 4/24  Chapter 23 Continued

Monday 4/27  Exam V - Chapters 22 and 23
Wednesday 4/29  Chapter 25 - Introduction to Digestive Function (pp. 945; 948-949; 953-956)
Friday 5/1  Chapter 25 - Stomach Physiology/Accessory Organs (pp. 958-970)

Monday 5/4  Chapter 25 - Intestinal Physiology (pp. 972-985)
Wednesday 5/6  Chapter 25 Continued
Friday 5/8  Chapter 27/28 - Overview of the Reproductive System (pp. 1026-1086)

Monday 5/11  All Extra Credit Due
Friday 5/15  Final Exam 12:45-2:45
             (50 points Chapters 25 27/28, 50 points Comprehensive)
BIO 121 – HUMAN PHYSIOLOGY
TENTATIVE LAB SCHEDULE

Week of 1/20  Exercise 1 - Microscopy and Histology (Reference Saladin Chapter 5)
Week of 1/27  Exercise 3 - Membrane Transport
              Quiz 1 - 10 pts
Week of 2/3   Exercise 4 - Membrane Potential
              Quiz 2 - 10 pts
Week of 2/10  Lab Exam I - 50 pts
Week of 2/17  Exercise 12 - Skeletal Muscle Action Potentials and Muscle Fatigue
              Exercise 13 - Introduction to Reflexes (Reference Saladin pp.493-499)
Week of 2/24  Exercise 7 - Memory and Learning
              Quiz 3 - 10 pts
Week of 3/2   Exercise 8 - Receptors and General Senses
              Exercise 10 - Special Senses - Taste and Smell (Reference Saladin pp. 584-588)
              Quiz 4 - 10 pts
Week of 3/9   Lab Exam II - 50 pts
Week of 3/16  Spring Break - No labs
Week of 3/23  Exercise 9 - Special Senses - Vision, Hearing and Equilibrium
Week of 3/30  Exercise 14 - The Analysis of Blood
              Quiz 5 - 10 pts
Week of 4/6   Exercise 16 - Cardiovascular Physiology and the EKG (EKG Saladin pp. 724)
              Quiz 6 - 10 pts
Week of 4/13  Exercise 15 - Cardiovascular Physiology and Blood Pressure
              Blood Pressure Practice Practicum - 10 pts
              Quiz 7 - 10 pts
Week of 4/20  Exercise 17 - Respiratory Physiology
              Quiz 8 - 10 pts
Week of 4/27  Exercise 6 - Urinalysis (Reference Saladin pp. 908-911)
              Quiz 9 - 10 pts
Week of 5/4   Lab Exam III - 100 pts