ANATOMY AND PHYSIOLOGY I
Biology F213X, 4 Credits
Fall 2016

Course Description
Integrated view of human structure and function for students in pre-professional allied health programs, biology, physical education, psychology and art. Covers cells, tissues and organs, skeletal and muscle systems, the nervous system, and integument. Special fees apply.

Course Prerequisites
CHEM F103X or CHEM F105X; placement in ENGL F111X or higher; placement in DEVM F105 or higher; or permission of instructor. (3+3)

Course Information

Lecture: Monday, Wednesday, Friday: 1 PM-2 pm
Location: Elvey Auditorium

Labs: meet 3 hours each week on Monday or Tuesday, depending on your particular section. All lab sections meet in Murie Building 303. You may not move between sections without specific permission of the instructor.
  F01 Tuesday 6-9 pm
  F02 Tuesday, 8:15-11:15 am
  F03 Tuesday, 2-5:00 pm
  F04 Monday, 2-5:00 pm

Professor
Sandy Lewis
Office: Murie 223D
Phone: 907-474-7931
Email: sglewis@alaska.edu
Office hours: Monday 2-3, Wednesday 2-3 and other times by appointment
  The professor encourages students to meet during office hours and/or to make appointments as necessary.

Teaching Assistants
Your TAs will be instructing lab sections. They meet regularly with the professor with the common goal to ensure that each lab receives the same information and that all labs are synchronized with the lectures as much as possible. Your TA will be holding office hours to assist whenever you have questions or need extra help learning A&P.

It is important to know your TA's name, contact information and office hours. It is also important that you always remember which lab section you are enrolled in (F01, F02, F03, or F04).
Biology 213X TAs:

Maryanne Evans
Sophie Weaver
Sara Wilbur
Allison Woodward

Textbooks
Required textbooks are the same for both Fall F213X, and spring semester, S214X. *Human Anatomy and Physiology, 10th Edition*, by Elaine N. Marieb and Katja Hoehn, published by Pearson Education ISBN 978-0-321-92704-0

*Human Anatomy and Physiology Laboratory Manual, Cat Version, 12th Edition*
By Elaine N. Marieb, Susan J. Mitchell, an Lori A. Smith
Published by Pearson Education ISBN 978-0-321-97135-7

In addition, the online resource “Mastering A and P” is required. This comes with the package of books available through the UAF bookstore. It can also be purchased separately at the Mastering website as soon as it is opened by your instructor.

Students who choose to use a different textbook or an earlier edition of the required text, will still be held accountable for any information in the required textbook. It is advised that you have a class contact with whom you may share a required textbook or lab manual.

Course goals
The ultimate goal of this course, and its second semester companion, BIOL 214X, is to prepare you with a strong understanding of human anatomy and physiology and the critical thinking skills needed to be successful in future courses required for the medical profession you wish to enter, and to the maintenance of your own health and well-being.

Student learning outcomes
These basic student learning outcomes were developed by the Human Anatomy and Physiology Society (HAPS). Anatomy and physiology courses across the country ask the same outcomes of their students. These broad student learning outcomes cover the fundamental content and processes in anatomy and physiology. As we explore individual organ systems, you will be provided with deeper and more specific learning outcomes.

1. Develop a vocabulary of appropriate terminology to effectively communicate information related to anatomy and physiology.
2. Recognize the anatomical structures and explain the physiological functions of the body systems.
3. Recognize and explain the principle of homeostasis and the use of feedback systems to control physiological systems in the human body.
4. Use anatomical knowledge to predict physiological consequences, and use knowledge of function to predict the features of anatomical structures.
5. Recognize and explain the interrelationships within and between anatomical and physiological systems of the human body.
6. Synthesize ideas to make a connection between knowledge of anatomy and physiology and real-world situations, including healthy lifestyle decisions and homeostatic imbalances.
7. Demonstrate laboratory procedures used to examine anatomical structures and evaluate physiological functions of each organ system.
8. Interpret graphs of anatomical and physiological data.

**Instructional methods**

Lectures will include traditional lecture style, taking notes by hand, drawing and labeling, on-screen visuals, discussions, demonstrations, and videos. Laboratory activities occur primarily in groups (except for lab practical exams and quizzes) and include microscopy, dissection, varying hands-on activities, research activities, online assignments, and other various learning technologies online.

Reading and studying the text prior to lecture, taking your own notes, asking questions for clarification, and actively participating in class activities and discussions all will contribute to your success in this class.

Lab is essential to learning anatomy and physiology. It is where you translate 2-dimensional photos in the book, board and screen, into 3-dimensional reality. It is where you apply the principles that you learned by reading, listening, looking, and interactively discussing.

Blackboard online site will be a primary means of communicating, completing some assignments and tracking your grades. It will also be used to convey routine and emergency information, as necessary.

Mastering A and P, Pearson's online learning system, comes with the required text. It contains a wealth of learning and review experiences, and will be used to enhance learning anatomy and physiology. Mastering A and P can be accessed at https://www.masteringaandp.com. The course ID is BIOLF213XFall2016.
Attendance and Class Expectations

Lecture

Attendance is required in lecture and will be taken from time to time. Each missed lecture documented by a roll call, sign-in sheet, quiz, etc will result in a 5 point deduction in your final score. If you must miss lecture, you are still fully responsible for all information given during a lecture period. **This includes all announcements.** For example: if it is announced in lecture that a quiz will be given during the next lecture class, all students are expected to come prepared for the quiz. Any student not taking the quiz will receive a zero for that quiz. Therefore, you are advised to establish a contact person in the class from whom you may get information in the event you must miss a class. It is expected that students will not miss any class sessions except for emergencies. Successful students attend lecture regularly.

Please arrive on time for lecture. If you are late, you are required to sit in the back, to minimize disruption of lecture. Guests may be accommodated in lecture, but please let the instructor know ahead of time. Children are only allowed in class when there is an emergency, and that emergency must be discussed with the instructor before class. It is the student’s responsibility to determine whether or not the subject matter is appropriate for the child that he or she must bring to class in an emergency. The instructor may overrule the parent in this decision, if necessary. In this class we have discussions (sometimes with mature subject matter), graphic videos and other media that are inappropriate for children of some ages. ALL students with a child in class due to an emergency (previously approved) must sit in the back row and provide the child with crayons, pencils and paper, etc. so that the child is not disruptive in any way, otherwise the student and child will be asked to leave immediately, and without discussion. Guests and children are not allowed in lecture during exams.

Lab

Attendance in lab is mandatory. Missing the hands-on learning experiences offered in a lab setting, can generally not be made up. Twenty points will be deducted from your total lab score for each missed lab. You must attend the lab section for which you are registered, however in the event of an emergency, and with permission of both TAs involved, you may arrange to have one missed lab, due to an unavoidable emergency made up during another lab section associated with 1:00 PM lecture section. Keep in mind that TAs may not overload a lab section in order for you to make up a lab. This is for safety purposes.

In labs, you are expected to arrive on time and will sign in at the time that you arrive. Arriving to lab more than 10 minutes late may result in a 5 point deduction in your lab score, depending on the circumstance. Plan on staying for the entire lab. You must sign out when you leave lab. Leaving lab early will result in a 5 point deduction in your lab score. Your TAs will make decisions regarding the official required ending time for labs.

All students are expected to be respectful toward each other, and toward their instructors.

Absolutely no food or drink is allowed in lab. Only covered drinks (no food) are allowed in the lecture hall.
Only those individuals enrolled in the class are allowed in labs (this includes infants). This regulation is for the health and safety of infants and young children.

Generally, all electronic devices must be turned off during lecture and labs, unless otherwise instructed. For example, photographing areas of histology slides that you view with your microscopes is allowed. Internet searches will also be conducted from time to time. Your instructor or TAs will inform you when you may use cell phones or other electronic devices in class.

All students are expected to be respectful toward lab specimens, equipment, bones, etc.

**Academic Honesty**

While learning is a collaborative effort, testing is not. **Cheating in any way will not be tolerated.** The work on your exams and quizzes is to be yours alone and to be done without aids. Cell phones on during exams is considered cheating. Caps are not allowed during exams. **Allowing others to view your work is considered cheating.** Organized and group cheating is not allowed. Plagiarism is not allowed. In adherence with the University's Academic Honor Code, if you cheat on an exam, or represent someone else's work as your own, you will receive a grade of 0 for that assignment. If you violate the honor code a second time, you will receive a failing grade for the course and may be referred to the University Disciplinary and Honor Code Committee for further action. Please review the honor code stated in the UAF Catalog.

**Grading**

Apportionment for final grade for Biology 213XX:

<table>
<thead>
<tr>
<th>Lecture</th>
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<tbody>
<tr>
<td>Tests #1-4</td>
<td>100 points each</td>
<td>400 points</td>
</tr>
<tr>
<td>Final exam (comprehensive)</td>
<td>100 points</td>
<td>100 points</td>
</tr>
<tr>
<td>Misc quizzes/assignments</td>
<td>10-20 points each</td>
<td>20-60 points</td>
</tr>
</tbody>
</table>

Total lecture points possible: 520-560 points
Lab

There will be 3 lab exams worth 75 points each. In addition, there will be lab quizzes worth from 10-15 points each up to a total of 50 points. Details regarding lab exams, quizzes, expectations in lab and most importantly lab safety* will be provided by your teaching assistants during the first lab.

Lab total points: 275 points

Grading Scale:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-100%</td>
<td>A+ (4.0)</td>
<td>77-78%</td>
</tr>
<tr>
<td>90-94%</td>
<td>A (4.0)</td>
<td>70-76%</td>
</tr>
<tr>
<td>89%</td>
<td>A- (3.7)</td>
<td>69%</td>
</tr>
<tr>
<td>87-88%</td>
<td>B+ (3.3)</td>
<td>60-68%</td>
</tr>
<tr>
<td>80-86%</td>
<td>B (3.0)</td>
<td>&lt;60%</td>
</tr>
<tr>
<td>79%</td>
<td>B- (2.7)</td>
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Incompletes will only be assigned in the event of a serious, unexpected occurrence beyond the student's control. Incompletes will be assigned only to qualifying students who have attended lecture and lab regularly and have completed at least two-thirds of the course material with at least a 70% average.

A no-basis grade (NB) will only be assigned if the student has never attended class and has never taken a test or quiz.

Extra-credit work is not accepted in this class. Some extra credit questions may be built into exams.

Test Format

Lecture exams 1-4 may contain any or all of the following types of questions: fill-in-the blank, short answer, drawing and labeling, labeling and/or identification of drawings, matching, multiple choice. The final exam is comprehensive for the Bio 111X course and will consist of 100 multiple-choice questions. Lab exams will include both written and practical questions.

Your ability to communicate concepts clearly in writing is essential for your success in this course. This includes spelling terms correctly.

There are NO make-ups for missed tests unless a VALID excuse is discussed with the instructor PRIOR to the test. In the event of an emergency, please either email or call me before the time class begins so that you may be able to petition to take a make-up exam. Make-up exams are not the same as the exams given in class, and are likely to contain more essay questions than the class exam.
*Note Regarding Lab Safety*

Laboratory safety is our primary concern. Please listen closely to, and follow, the safety instructions given to you by your lab TA. You are responsible for reading, studying, and adhering to all safety rules and guidelines as they pertain to each anatomy and physiology laboratory.

**Class Etiquette**

- Be respectful of your fellow students and instructors. If you have comments or questions, please raise your hand. There will be times in lecture when you are encouraged to engage in class debates and discussion in small groups, otherwise talking and chatter is unacceptable.
- Please arrive on time and with the necessary supplies. If you must arrive late, please arrive quietly and sit toward the back or in an area which will be least distractive. It is advisable to arrive 7-10 minutes early on days in which a lecture exam or quiz will be given. If you arrive late and miss needed time to complete a tests or quiz you will not be given extra time to complete it.
- Stay for the entire class.
- If you are asked to leave class or an exam, for whatever reason, I will not discuss it with you until class is dismissed, so you are expected to leave quickly and quietly.
- Take your bathroom breaks between class, not during class (unless it’s a real emergency!).
- **Encourage each other!** Help each other to learn the material. If you are in the “giving of information” role, you will benefit as much as if you are in the “receiving of information” role.
- Do not bring children, friends or relatives to class unless you have checked with me ahead of time. **Visitors, including children, are not allowed in lab at any time.**

**A Few Study Tips**

1. Read each chapter in the text before it is covered in lecture. Pay particular attention to the diagrams, charts, graphs and tables, photos, and clinical applications of the material covered in the text. While you may not understand or retain everything you read, having become familiar with the concepts we will be covering in class will help you understand lectures much better.

2. **Take notes during lecture.** Do not try to write down everything said, word for word. Rather, outline general concepts and draw and label by hand any diagrams drawn for you by the instructor.

3. As soon after lecture as possible, go back to the textbook and clarify the concepts covered during lecture.

4. Study the material daily. Try to stay one step ahead of the syllabus. Since one concept builds on another in this course, you most definitely don’t want to fall behind!

5. **Establish study groups and/or find yourself a study partner.** Study together as well as by yourself. Speak the “A&P” language out loud together. Create short written tests for yourself and your study partners.

6. Ask questions if you don’t understand something.

7. Use the supplements accompanying your text. You should know by the end of the second week of classes which supplement is going to be most helpful for you. Everyone’s learning style is a little different, so what works well for one student may not work well for another. Make an effort during the first part of the course to discover how you best learn this material.

8. Find time to have fun! Having some genuine “fun time/relax time/ mindless energy time.” It will make your actual study time more productive.
Help is available

- Please take advantage of office hours. Professor Lewis and all of the TAs will have posted office hours as well as being available at other times by appointment. If you make an appointment with one of your instructors, you are expected to be on time for that appointment. If you must cancel, please do so at least 24 hours in advance if at all possible.

- Disability services provides assistance to any student with a documented disability. If you have a disability, please contact them (474-5655, 208 Whitaker Building) early in the semester. If you have documentation of your disability, please bring it to my attention as soon as possible so that I may provide the accommodations you need. Any student not taking a lecture exam or quiz with the class must adhere to the same rules as students in the class. Your test must begin the exam at the same time as the class exam and on the same day. The instructor reserves the right to give you an oral quiz on the material if it is suspected that your performance on the special needs exam is questionable.

- Student-athletes need to meet with me during the first week of class.

- If English is your second language, please see me during the first week of class.

Anatomy and physiology is a highly relevant topic. Please feel free to bring in interesting articles, pertaining to course material, that you come across in reputable journals, web sites, etc.

I look forward to getting to know each of you as we work together to study and learn about our fascinating human bodies!
<table>
<thead>
<tr>
<th>Wk. Dates</th>
<th>Chapter</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1. 8/29-9/2</td>
<td>1</td>
<td>Introduction to Anatomy and Physiology</td>
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<tr>
<td>2. 9/5</td>
<td>2</td>
<td>Labor Day, No Classes, Chemistry review</td>
</tr>
<tr>
<td>9/7-9/9</td>
<td>2</td>
<td>Cell theory, plasma membranes, membrane potentials, cell-cell communication, organelles, nucleus, protein synthesis, energy, Histology: Epithelial tissues</td>
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<tr>
<td>3. 9/12-9/16</td>
<td>3</td>
<td>Integumentary system</td>
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<tr>
<td>4. 9/23</td>
<td>3</td>
<td>Histology: Connective, Muscular and Nervous</td>
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<tr>
<td>5. 9/26-9/30</td>
<td>4</td>
<td>Histology: Connective, Muscular and Nervous</td>
</tr>
<tr>
<td>6. 10/3-10/7</td>
<td>5</td>
<td>Integumentary system</td>
</tr>
<tr>
<td>7. 10/10-10/12</td>
<td>6</td>
<td>Skeletal system: bone tissue, development, repair</td>
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<tr>
<td>8.</td>
<td>7</td>
<td>The Skeleton (Identification of bones and bone markings are covered in lab.)</td>
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<tr>
<td>8.</td>
<td>7</td>
<td>Joints</td>
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<tr>
<td>9. 10/14</td>
<td>7</td>
<td>Muscular system: gross anatomy, histology, physiology of contraction, force, velocity, duration of contraction</td>
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<tr>
<td>9. 10/3-10/7</td>
<td>8</td>
<td>Muscular system: smooth muscle, muscle imbalances</td>
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<tr>
<td>9. 10/17-10/21</td>
<td>8</td>
<td>Muscular system: smooth muscle, muscle imbalances</td>
</tr>
<tr>
<td>10. 10/10-10/12</td>
<td>9</td>
<td>Muscular system: (identification of muscles is covered in lab)</td>
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<tr>
<td>10. 10/4</td>
<td>9</td>
<td>Muscular system: (identification of muscles is covered in lab)</td>
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<tr>
<td>11. 10/14</td>
<td>9</td>
<td>Muscular system: (identification of muscles is covered in lab)</td>
</tr>
<tr>
<td>11. 10/17-10/21</td>
<td>10</td>
<td>Muscular system: (identification of muscles is covered in lab)</td>
</tr>
<tr>
<td>12. 10/24-10/28</td>
<td>11</td>
<td>Nervous system: organization, glial cells, neurons, membrane potentials, synapses, neurotransmitters, neural integration</td>
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<tr>
<td>13. 10/31-11/4</td>
<td>11</td>
<td>Spinal cord anatomy</td>
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<tr>
<td>13. 10/31-11/4</td>
<td>11</td>
<td>Spinal nerves, motor endings, motor activity, reflexes, Sensory receptors, sensation, nerve structure and repair</td>
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<tr>
<td>13. 10/31-11/4</td>
<td>11</td>
<td>Protection of the brain, CSF composition and circulation</td>
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<tr>
<td>11/4</td>
<td>11</td>
<td>cerebral cortex, deep cerebrum, diencephalon, neuroendocrine system</td>
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<tr>
<td>11/4</td>
<td>11</td>
<td>Last day to withdraw</td>
</tr>
<tr>
<td>12. 11/7-11/11</td>
<td>12</td>
<td>Brain stem, cerebellum, functional systems</td>
</tr>
<tr>
<td>12, 13</td>
<td>12</td>
<td>Higher mental functions, brain injuries and disorders</td>
</tr>
</tbody>
</table>
12. 11/14  
    Review for Exam #3

**11/16**  
    EXAM #3

11/18  
    14  Autonomic Nervous System

13. 11/21-11/23  
    14  Autonomic Nervous System continued

    15  Eye and vision
    Take-home worksheet will be handed out on 11/23 and is due
    Monday, November 28th at 1:00 PM.

    11/24-11/27  
    THANKSGIVING HOLIDAY, no classes

14. 11/28-12/2  
    15  Eye and vision continued

    15  Ear, hearing and equilibrium

    15  Chemical senses: taste and smell

15. 12/5  
    16  The Endocrine System (this system is embedded throughout Biology 213 and 214, and covered within each unit)

**12/7**  
    EXAM #4

12/9  
    Review for comprehensive final exam

16. **12/12**  
    FINAL EXAM-Monday, December 12th, 3:15-5:15 PM

* Lecture schedule subject to minor changes as needed.
# Lab Schedule* Fall 2016

**Professor**  
Sandy Lewis

<table>
<thead>
<tr>
<th>Wk.</th>
<th>Dates</th>
<th>Topic</th>
<th>Lab Manual Exercises*</th>
</tr>
</thead>
</table>
| 1.  | 8/29, 8/30  | Laboratory safety!  
The language of anatomy  
The microscope  
The cell: Transport mechanisms and cell permeability. | Inside front cover of manual  
Ex. 1  
Ex. 3  
Ex. 5 |
| 2.  | 9/5, 9/6    | No labs - Labor Day                                                  |                       |
| 3.  | 9/12, 9/13  | Protein synthesis, mitosis,  
Histology                                                              | Ex 4  
Ex 6 |
| 4.  | 9/19, 9/20  | Histology continued  
Integumentary system  
Bones and bone markings assignment | Ex. 6  
Ex. 7  
Ex. 8, 9, 10 |
| 5.  | 9/26, 9/27  | **Lab Practical Exam #1**  
Skeletal system, bone histology | All topics to date (including, lab safety), except bones  
Remain after practical for Bone identification and assignment of bone markings.  
Ex 8, 9, 10 |
| 6.  | 10/3, 10/4  | Skeletal system, joints  
Small group activity  
Mock practical exam (optional)  
Microscopic anatomy of skeletal muscle | Ex. 11  
Ex. 8-11  
Ex. 12 |
| 7.  | 10/10, 10/11| Bones and bone markings continued  
Mock practical exam (required - 10 points) |                       |
| 8.  | 10/17, 10/18| **Lab Practical Exam #2**  
Bones, bone markings and joints. Remain after practical to begin cat dissection and assignment of muscles. |                       |
| 9.  | 10/24, 10/25| Microscopic anatomy of skeletal muscle  
Cat and human muscles | Ex. 12  
Ex. 13 |
| 10. | 10/31, 11/1 | Dry lab skeletal muscle physiology  
Muscles continued | Ex. 14  
Ex. 13 |
11. 11/7, 11/8  Muscles continued  Ex. 13

12. 11/14, 11/15  Histology of nervous tissue  Ex. 15
Gross anatomy of brain and cranial nerves  Ex. 16
Spinal cord and spinal nerves  Ex. 19

12. 11/21, 11/22  Lorenzo's Oil Movie, followed by a handout with questions. Lorenzo's oil paper is due on Monday, 11/28 at 1:00 PM.

13. 11/28, 11/29  Human reflex physiology  Ex. 21
General sensations  Ex. 22
Special senses: visual anatomy  Ex. 23
Special senses: visual physiology  Ex. 24
Special senses: hearing and equilibrium  Ex. 25
Special senses: olfaction and taste (dry lab)  Ex. 26
Review for lab practical exam #3

14. 12/5, 12/6  Lab Practical Exam #3  Students must remain after lab exam to help clean up lab.

* Lab schedule subject to change as necessary