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-2PM
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 Monday, 6-9 PM
- F02 Tuesday, 8:15-11:15 AM
- F03 Tuesday, 2-5 PM
- F04 Tuesday, 6-9 PM

Instructor Information
Professor
Dr. Marsha Sousa
Office: Murie 223D
Phone: 474-7931
Email: mcsousa@alaska.edu
Office hours: Monday 2-4 or by appointment

Teaching Assistants
Your TAs will be instructing lab sections. They meet with me weekly and we all work hard to ensure that each lab receives the same information and that all labs are synchronized with the
lectures. Your TA will be holding office hours to assist whenever you have questions or need extra help learning A&P.

Janice Ott
itott@alaska.edu
Murie 23D

Stephanie DeRonde
scderonde@alaska.edu

Imme Rutzen
irutzen@alaska.edu

Allison Woodward
Allison.woodward@alaska.edu

Textbooks
These two textbooks are required for both this semester and for BIOL 214X.

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, you are required to have access to the online resource Mastering A and P. 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 I open it up.

We will use the same books, lab manuals, and online resources next semester in BIOL 214X. If you have an older edition of the text or lab manual, you may use it; however, you may not have access to Mastering through that book and you will also need to be responsible for identifying the portions of the text and lab manual that will be covered in the syllabus.
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 to apply what you have learned to 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. 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
Lecture, discussion, demonstration, film clips, laboratory activities, online assignments, various learning technologies online

Lecture is not just lecture. You are an active participant in learning the information by reading the text prior to lecture, taking your own notes, asking questions for clarification and to add to the connections that we make in class, and participating in group discussions and exercises.

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

Blackboard online site will be a primary means of communicating and completing assignments. We will use it to convey routine information. Homework and pre-lab assignments will be
completed in Blackboard; however, mid-term exams, final exams, and lab practicals will be completed in the classroom or lab. Get comfortable with using Blackboard as soon as possible.

Mastering A and P, Pearson’s online learning system, comes with your text. It contains a wealth of learning and review experiences. Periodically we will assign specific activities in Mastering A and P to be graded. You must have access to Mastering A and P. It can be accessed at https://www.masteringaandp.com. The course ID is BIOLF213XFall2015.

Course Policies

**Attendance** at both lab and lecture is absolutely required. I will not consume lecture time by taking attendance, but attendance will be taken in lab. You may miss only one lab without penalty. After that 10 points will be subtracted from your total grade for every absence. Don’t short-change yourself by being tardy or absent, or by leaving early. If you encounter unexpected extenuating circumstances that require an extended absence, you must contact the instructor immediately. In some cases, it might be that withdrawing is your best option.

**Arrive on time** and stay for the entire class. It is very disruptive to the instructor and to other students when a student arrives late or exits and re-enters the class during lectures, discussions, demonstrations, and films. This is not as much an issue during lab — but even then, do not leave during the TA’s presentation about what is going to happen in lab that day. You will be given adequate opportunities to take care of your personal needs during labs; take care of your bathroom breaks before you come to lecture.

**Academic integrity** and complete honesty is expected, valued, and required in this class. The work you turn in should be your very best endeavor, and it should be yours and yours alone. At times you will work in groups. In those cases it will be made clear that all in the group had a hand in completing the assignment. You may even be asked to comment on the contributions of each member of the group. Many times you will study together and learn from each other when doing homework. Even then, go your separate ways and make sure that what you turn in is your own work. If want to use the work of others, by all means do — but cite it appropriately! Give credit where credit is due. Finally, please review the UAF Honor Code in your catalog. If you plagiarize or cheat on an assignment, you will receive a grade of 0 on that assignment. A second infraction will lead to an F in the class.

**Please be respectful** of your instructors and your classmates at all times. Respect their opinions and ideas, discuss politely and honestly, reflect thoughtfully, share your best thinking, give others a chance to speak and don’t dominate the discussion.

**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 the labs. Guests may be accommodated in lecture, but please let the instructor know ahead of time. Your children may
be cute, charming, mature, etc., but they are distracting in class. Please make arrangements for someone to watch them during all class times.

**Electronic devices should be turned off** and ignored during labs and lectures. If we need to use them for any reason, you will be notified. Facebook, email, Twitter, Instagram, Pinterest, Snapchat and the like can all wait until another time. Focus on class. If I am distracted by any texting or computer use in class, I will ask you and your device to leave class. Don’t force me to waste class time or embarrass you.

**Grades**

You will receive a single letter grade in this 4-credit course. It will be based on the following.

- 4 midterm lecture exams, 100 points each
- 1 comprehensive final exam, 150 points
- 4 lab practicals: (approximately 150 points total)
- Various lab assignments and online homework assignments: (approximately 200 points total)

Grades will be based on the percentage of possible points that you earn. Grades will be assigned as follows. I will round your average to the nearest whole number.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Calculation in your GPA</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>98-100%</td>
<td>4</td>
<td>An honor grade, indicates originality and independent work, a thorough mastery of the subject and the satisfactory completion of more work than is regularly required.</td>
</tr>
<tr>
<td>A</td>
<td>92-98%</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td>90-91%</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>88-89%</td>
<td>3.3</td>
<td>Indicates outstanding ability above the average level of performance.</td>
</tr>
<tr>
<td>B</td>
<td>82-88%</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td>80-81%</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td>78-79%</td>
<td>2.3</td>
<td>Indicates a satisfactory or average level of performance.</td>
</tr>
<tr>
<td>C</td>
<td>72-78%</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>70-71%</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>60-69%</td>
<td>1.0</td>
<td>The lowest passing grade, indicates work of below-average quality and performance.</td>
</tr>
<tr>
<td>F</td>
<td>59 or below</td>
<td>0.0</td>
<td>Indicates failure.</td>
</tr>
<tr>
<td>NB (no basis)</td>
<td></td>
<td></td>
<td>I will only use an NB grade only if I have never been aware of your attendance and you have never completed any graded assignments.</td>
</tr>
</tbody>
</table>
Learning tips

- Take the Mastering A and P assessment to determine your learning style.
- Think carefully and honestly about your study habits, and modify them accordingly.
- Map out your schedule and set aside sufficient time to complete all your study.
- Learning is cumulative - study daily. Master material as we go because it all builds from the foundations you establish in the first few weeks. You cannot cram to make consistently good marks or to remember the material for your next class.
- Read deeply. This means skimming through the chapter to determine what is going to be covered, and then going back and carefully reading each part. Think about the learning outcomes you are to achieve as you read. Visualize as you read. Draw. Take notes. Practice. Think, think, think, and then think some more.
- Go over lecture notes just as soon after lecture as you can. Clarify what you wrote and make references to pages in the text for tough areas that you will need to spend extra time on.
- Make sure you prepare before every class by reading the chapter or lab exercise and preparing your own questions for clarification. Know what you don’t know!
- When you are studying A and P, try to relate it to the real world as much as possible. Does it help explain some illness you had? Does it clarify an article you read? Does it relate to a test the physician ordered? A sports injury? An exercise program? A diet? Think of anything you can that will help you make an association with something already in your long-term memory.
- Be intentional! Decide what you are going to learn and figure out a way to learn it! Use mnemonics, write songs, create skits, explain it to your dog, or teach it to a classmate.
- Don’t fool yourself into thinking that you studied if you didn’t. This includes hours spent wandering through cool A&P stuff on the web and group study times that are dominated by discussions that are off-topic. Discipline yourself!

Help is available

- Please take advantage of office hours. Dr. Sousa and all of the TAs are available to help you during these specific times or we can make appointments with you at other times.
- Disability services provides assistance to any student with a document 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.
# Lecture Schedule, BIOL F213X, Fall 2015

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Topics</th>
<th>Reading (Text)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 4</td>
<td>Introduction</td>
<td>Ch 1-all</td>
</tr>
<tr>
<td>Sept 7</td>
<td>Labor Day, No Classes</td>
<td></td>
</tr>
<tr>
<td>Sept 9</td>
<td>Chemistry review</td>
<td>Ch 2-all</td>
</tr>
<tr>
<td>Sept 11</td>
<td>Chemistry review</td>
<td></td>
</tr>
<tr>
<td>Sept 14</td>
<td>Cell theory, plasma membranes</td>
<td>Ch 3, 60-79</td>
</tr>
<tr>
<td>Sept 16</td>
<td>Membrane potentials, cell-cell communication</td>
<td>Ch 3, 79-82</td>
</tr>
<tr>
<td>Sept 18</td>
<td>Cytoplasmic Organelles</td>
<td>Ch 3, 82-90</td>
</tr>
<tr>
<td>Sept 21</td>
<td>Nucleus, protein synthesis</td>
<td>Ch 3, 90-110 (mitosis is covered in lab)</td>
</tr>
<tr>
<td>Sept 23</td>
<td>EXAM 1</td>
<td></td>
</tr>
<tr>
<td>Sept 25</td>
<td>Epithelial Tissues</td>
<td>Ch 4, 115-127</td>
</tr>
<tr>
<td>Sept 28</td>
<td>Connective Tissues</td>
<td>Ch 4, 127-137</td>
</tr>
<tr>
<td>Sept 30</td>
<td>Muscle and nerve tissue, tissue repair</td>
<td>Ch 4, 137-146</td>
</tr>
<tr>
<td>Oct 2</td>
<td>Skeletal System, Bone tissue</td>
<td>Ch 6, 173-183</td>
</tr>
<tr>
<td>Oct 5</td>
<td>Bone development, bone repair</td>
<td>Ch 6, 183-194 (Ch 7 is covered in lab)</td>
</tr>
<tr>
<td>Oct 7</td>
<td>Joints</td>
<td>Ch 8 - all</td>
</tr>
<tr>
<td>Oct 9</td>
<td>Integumentary System</td>
<td>Ch 5, 150-161</td>
</tr>
<tr>
<td>Oct 12</td>
<td>Integumentary System</td>
<td>Ch 5, 161-169</td>
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<tr>
<td>Oct 14</td>
<td>EXAM 2</td>
<td></td>
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<tr>
<td>Oct 16</td>
<td>Muscular system: gross anatomy, histology</td>
<td>Ch 9, 278-288</td>
</tr>
<tr>
<td>Oct 19</td>
<td>Physiology of contraction, muscle metabolism</td>
<td>Ch 9, 288-304</td>
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<tr>
<td>Oct 21</td>
<td>Force, velocity, duration of contraction</td>
<td>Ch 9, 304-308</td>
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<tr>
<td>Oct 23</td>
<td>Smooth muscle, muscle imbalances</td>
<td>Ch 9, 308-317 (Ch 10 is covered in lab)</td>
</tr>
<tr>
<td>Oct 26</td>
<td>Nervous system, organization, glial cells, neurons</td>
<td>Ch 11, 388-398</td>
</tr>
<tr>
<td>Oct 28</td>
<td>Membrane potentials</td>
<td>Ch 11, 398-409</td>
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<tr>
<td>Oct 30</td>
<td>Synapses, neurotransmitters</td>
<td>Ch 11, 409-422</td>
</tr>
<tr>
<td>Nov 2</td>
<td>Neural integration</td>
<td>Ch 11, 422-425</td>
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<tr>
<td>Nov 4</td>
<td>Cerebral cortex</td>
<td>Ch 12, 430-440</td>
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<tr>
<td>Nov 6</td>
<td>Deep cerebrum, diencephalon</td>
<td>Ch 12, 440-446</td>
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<tr>
<td>Nov 9</td>
<td>EXAM 3</td>
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<tr>
<td>Nov 11</td>
<td>Brain stem, cerebellum, functional systems</td>
<td>Ch 12, 447-454</td>
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<tr>
<td>Nov 13</td>
<td>Higher mental functions</td>
<td>Ch 12, 454-460</td>
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<tr>
<td>Nov 16</td>
<td>Protection of the brain, brain injuries and disorders</td>
<td>Ch 12, 460-466</td>
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<tr>
<td>Nov 18</td>
<td>Spinal cord</td>
<td>Ch 12, 466-479</td>
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<tr>
<td>Nov 20</td>
<td>Sensory receptors, sensation</td>
<td>Ch 13, 485-492</td>
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<tr>
<td>Nov 23</td>
<td>Nerve structure and repair, cranial nerves</td>
<td>Ch 13, 492-503</td>
</tr>
<tr>
<td>Nov 25</td>
<td>Spinal nerves, motor endings, motor activity</td>
<td>Ch 13, 503-515</td>
</tr>
<tr>
<td>Nov 27</td>
<td>Thanksgiving Holiday, no classes</td>
<td></td>
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<tr>
<td>Nov 30</td>
<td>Reflexes</td>
<td>Ch 13, 515-522</td>
</tr>
<tr>
<td>Dec 2</td>
<td>Autonomic nervous system</td>
<td>Ch 14, all</td>
</tr>
<tr>
<td>Dec 4</td>
<td>EXAM 4</td>
<td></td>
</tr>
<tr>
<td>Dec 7</td>
<td>Eye and vision</td>
<td>Ch 15, 548-569</td>
</tr>
<tr>
<td>Dec 9</td>
<td>Ear, hearing and equilibrium</td>
<td>Ch 15, 574-590</td>
</tr>
<tr>
<td>Dec 11</td>
<td>Chemical senses: taste and smell</td>
<td>Ch 15, 569-574</td>
</tr>
<tr>
<td>Dec 14</td>
<td>Catch up and review</td>
<td></td>
</tr>
<tr>
<td>Dec 16</td>
<td>FINAL EXAM</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Lab</td>
<td>Lab Manual Exercises*</td>
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<tr>
<td>--------------</td>
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<td>-----------------------------------------------------------</td>
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<tr>
<td>Sept 7-8</td>
<td>No labs due to Labor Day Holiday</td>
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</tr>
<tr>
<td>Sept 14-15</td>
<td>Chemistry, plasma membrane models, Transport through membranes Microscopes</td>
<td>Ex 5, 1-3 &amp; 5 Ex 3, 1-5</td>
</tr>
<tr>
<td>Sept 21-22</td>
<td>Protein synthesis, mitosis, cell models</td>
<td>Ex 4, 1-7</td>
</tr>
<tr>
<td>Sept 28-29</td>
<td>Organ systems dissection Histology</td>
<td>Ex 2, 1-4 Organ systems dissection (rat) Ex 6, 1-4</td>
</tr>
<tr>
<td>Oct 5-6</td>
<td><strong>Lab Practical</strong>&lt;br&gt;Skeletal system, bone histology</td>
<td>Practical on everything to date After practical, begin working on skeletal structures Ex 8, 9, 10</td>
</tr>
<tr>
<td>Oct 12-13</td>
<td>Skeletal system, joints, skin models Group reports on joints and skin diseases</td>
<td>Ex 7, 1-4 Ex 10, 11</td>
</tr>
<tr>
<td>Oct 19-20</td>
<td><strong>Lab practical</strong>&lt;br&gt;Muscles (you will be provided a list of specific muscles to dissect and identify)</td>
<td>Practical on skeletal system and integumentary system Remain after practical to prepare cats for dissection</td>
</tr>
<tr>
<td>Oct 26-27</td>
<td>Muscles (you will be provided a list of specific muscles to dissect and identify)</td>
<td>Ex 12,1-3 Ex 13 (selected muscles)</td>
</tr>
<tr>
<td>Nov 2-3</td>
<td>Muscles</td>
<td>Ex 12, 13 continued</td>
</tr>
<tr>
<td>Nov 9-10</td>
<td><strong>Lab practical</strong></td>
<td>Practical on muscular system</td>
</tr>
<tr>
<td>Nov 16-17</td>
<td>Brain dissection, brain models, synapse models</td>
<td>Ex 15, 1-2 Ex 17, 1-2</td>
</tr>
<tr>
<td>Nov 23-24</td>
<td>Meninges, spinal cord models, general sensation</td>
<td>Ex 19, 1-3 Ex 22,1-6</td>
</tr>
<tr>
<td>Nov 30-Dec 1</td>
<td><strong>Lab practical</strong>&lt;br&gt;Cranial and spinal nerves&lt;br&gt;Reflexes</td>
<td>Lab Practical Ex 15, 3 Ex 17, 3 Ex 19, 1-3 Ex 21, 1-7</td>
</tr>
<tr>
<td>Dec 7-8</td>
<td>Special senses labs</td>
<td>Ex 23, 24, 25, 26 (selected activities TBD)</td>
</tr>
<tr>
<td>Dec 14-15</td>
<td>No labs, Dec 14 is last day of classes</td>
<td></td>
</tr>
</tbody>
</table>

* Additional information on specific lab exercises and other activities will be provided as we move through the semester. There will also be various group projects; most will be completed in lab though some may require working over the course of a week outside lab.