

Human Anatomy and Physiology I (Biology 201)  
Yavapai College  
Fall 2009

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**Online Office Hours:** Tu/Th 8:00-9:30 pm

**In-Office Hours:** M/W 1:00-2:00 pm; 4:45-6:00 pm; 8:45-9:30

**Course Website:** <http://faculty.yc.edu/lfrolich/>

**Description:**

Structure and function of the human body. Topics include cells, tissues, integumentary, muscular, skeletal, nervous, and endocrine systems.

This class is designed to familiarize the student with the structures of the human body, the language used to describe it, and the way it works, using human cadaver demonstrations as well as dissection of fetal pigs and other laboratory specimens as a guide to the anatomy. Interactive physiology labs help understand how the anatomy functions in a living person. The information presented is considered a fundamental base, as well as a language, that is universal to the biomedical sciences.

This class fulfills 4 science credits towards the AGEC (Arizona General Education Curriculum)

**Prerequisites:** BIO 156 (Preferred), or BIO 100 or BIO 181, or consent of instructor. Students without a good familiarity of basic biology may have difficulties succeeding in this course

**Lecture Text:** Martini, F.H. (2006). *Fundamentals of Anatomy and Physiology*, 7<sup>TH</sup> or 8<sup>th</sup> edition, Benjamin/Cummings.

Recommended: Kaput, W. (2002). *The Anatomy Coloring Book*. Benjamin Cummings.

**Anatomy and Physiology as a Language**

In many ways, this course involves learning a new language. To learn a new language, it is essential to have direct experience with the objects or material being described—in this case the human body, fetal pig and other laboratory specimens—and to find ways to ingrain the words involved. It is best to hear the terms, write them down, touch the structures while dissecting, draw the structures, label them, write their definitions, say them out loud and then repeat it all over again. This can get to be a boring and repetitive process, but it is important to remember the power that comes from being able to describe the details of the human body, and how it works, with precision, and at a level that was previously not possible.

**Keys to Success**

Students often ask me what might be the best way to excel in this course. Every student is an individual with their own strengths and weaknesses and every year I learn about new ways to study and approach anatomy and physiology. But I do have a few tips that seem to be universally useful to all students:

- **PREPARATION:** Students who get an A in this class always come prepared to class and lab. It is a simple fact. They have read ahead and they are already familiar with the systems and parts of the body and the terms to describe them. They've seen the figures from the text and the PowerPoint presentations that apply to what we are covering that day and they have previewed that day's class activities..
- **TIME:** This course requires time outside of class in order to do well—at least 10 hours/week.
- **REPETITION:** Read it, hear it, see it, say it, DRAW IT (this seems to be key); then do it again.
- **ATTITUDE:** Students with a better attitude do better in this class.

**Website:** <http://faculty.yc.edu/lfrolich/> The website for this course serves as your guide and allows me, as the instructor, to take the role of an organizer and explainer, rather than the holder of information. Presentations for the entire semester, along with note-taking handouts and links to other websites, can be found here. In addition, learning objectives and all logistical information regarding schedules, readings, and grading are posted. If you have a question, please consult the website and this syllabus first. If you don't find the answer, then post your question to The Outer Tube social network, send me an e-mail, or ask in class.

## Organization and Course Logistics

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**Three Parts:** The semester is split into three parts, each treated as a mostly independent unit with a non-cumulative exam. The attached weekly schedule gives the themes for each part of the course, as well as weekly topics and text chapters (from the Martini text) that serve as reference.

**Lab Activities:** Lab exercises are tightly linked to the course material and form an integral and crucial part of your learning experience. Labs involve either observation of the human cadaver, dissection of fetal pigs or other materials, examination of microscope slides, or physiological experiments, usually using our own bodies as the experimental subjects (nothing invasive or dangerous).

**Hybrid Students:** For students in hybrid sections that only have one class meeting per week, we will dedicate our time together to doing lab activities. Therefore, please be sure you view the presentations, which are available online, and review the text chapters for that week. The presentations are available as PowerPoint files that you can download, or as Tegrity video recordings, which can be seen by direct streaming or by downloading and viewing later—I will explain how to do this in class. I will assume you've seen that week's presentations—it can be difficult and confusing to understand the lab activities if you haven't seen the presentations, so please come prepared.

**Attendance:** Any student who misses lecture or lab during the first two weeks of the semester, without prior consent from instructor, may be withdrawn from the course. All exams and assignments must be completed at the designated time. If presented late, they will only be considered with written evidence of an emergency or urgent situation.

**Withdrawal:** Students may withdraw until the mid-semester withdrawal date. After that date, if you continue in the class, I assume it is because you wish to receive the grade that you earn (A-F). If you wish the S/U grading option, you must request it before the third exam.

### **Course Content (for all Yavapai College Anatomy and Physiology I sections, from course catalog):**

- Anatomical terms and homeostasis
- Cytological and histological anatomy and functions
- Integumentary system
- Anatomy and physiology of the skeletal system
- Axial and appendicular skeleton, joints
- Anatomy and physiology of the muscular system
- Gross and microscopic anatomy of muscles
- Muscle contraction
- Anatomy and physiology of the nervous system
- The central and peripheral nervous systems
- The automatic nervous system
- The senses

### **Learning Outcomes (for all Yavapai Anatomy and Physiology I sections, from course catalog):**

#### **Upon successful completion of this course, the learner will be able to:**

- Identify the parts of a typical cell and describe their function and structure.
- Identify and describe the four basic tissue types, their anatomy and functions.
- Describe the anatomy and functions of the integumentary system.
- Identify and describe the anatomy and physiology of the skeletal system.
- Identify and describe the anatomy of joints, axial and appendicular skeletal systems.
- Identify and describe the anatomy and physiology of the muscular system.
- Identify and describe the gross and microscopic anatomy of muscles.
- Describe the biological processes involved in muscle contraction.
- Identify and describe the anatomy and physiology of the nervous system.
- Describe and identify brain and spinal cord anatomy and reflexes.
- Describe the biological processes involved in the nerve impulse.
- Describe and identify the anatomy and physiology of the autonomic nervous system.
- Describe and identify the anatomy and physiology of the senses.

## Evaluation and Grading

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**Written Exams (100 points each for total of 300 points):** Anatomy and Physiology is mostly a factual subject with objective exams used as the main evaluation tool. Each exam will be based on lecture material and associated chapters from the text. Each exam will be worth 100 points. Exams will be a combination of multiple choice, fill-in-the-blank, matching, and short answer questions. The exams are NOT cumulative and only test on the material from the most recent section of the course. Exams will be available from Tuesday until Friday during exam week in the out-of-classroom testing center (hours on course website). Make-up exams will be given only if proof of a legitimate emergency can be provided.

**Compendium Notebooks (use to “pay down” exam points):** Students often tell me they have studied thoroughly and reviewed extensively for an exam, but just don’t do well on tests. To help with this problem, you will have the option of “paying down” your exam grade for each section of the course by preparing a comprehensive compendium review notebook of all the material we have covered for that section of the class. a compendium review notebook during the class meeting prior to the exam. At the class meeting prior to exams, you will have a chance to present that notebook and I’ll go over with you to insure that it is complete and correct. Most students also find that the compendium notebook is a great way to prepare for the exam. Detailed instructions for putting together this compendium can be found on the course website.

**Quizzes (100 points for total quiz average):** Weekly quizzes are given to inspire you to keep on top of studying and as a gauge for how well you’re doing in the class. They are given first thing at our first class meeting of the week and cover the material from the previous week’s classes. If you are not doing well on the quizzes and find them difficult, then that is a sign that you need to change your approach to studying for Anatomy and Physiology. Each quiz is worth ten points and the quiz average then contributes 100 points (the equivalent of one lecture exam) to the semester total. Quizzes are based on the material from the previous week. Exam week and the week immediately following exams will have no quizzes.

**Lab Practicals (100 points each for 300 points total):** Your understanding in lab is evaluated in three lab practical exams. Lab practical exams will be the same week as the lecture exams and cover just the lab material from that section of the course. As the first lab practical nears, I will provide some sample questions and discuss strategies to do well on these exams. Most important is to come to class each week prepared, focus during lab, and review what you’ve learned every week. Lab practicals cannot be made up for any reason. If you miss a lab practical for an emergency reason, you must contact the instructor to discuss alternative arrangements. You must show a cumulative passing grade on the lab practicals or you cannot pass the class, no matter how well you do on the other exams and evaluations.

<b>Final Grade:</b>	Lecture Exams	300 points
	Quiz average	100 points
	Lab Practicals	300 points
	<b>TOTAL POSSIBLE</b>	<b>700 POINTS</b>

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Letter grades are assigned according the following point (and percentage) accumulations.

- A: More than 630 points (90%)
- B: More than 560 points (80%)
- C: More than 490 points (70%)
- D: More than 420 points (60%)
- F: Less than 420 points

(Grade calculator is on next page)

## Dedication, Collegiality, Professionalism, Cadavers

From the outset, I assume that students who have advanced sufficiently in their academic professional goals to be taking this course are self-motivated and want to achieve at the highest level. I view my own role as one of a colleague who serves to orient and guide the student. In both the classroom, and especially in the lab, where tight collaboration is a necessity, I strive to create an environment that promotes a strong sense of professional respect and expect students to do the same. While observing the norms of academic honesty, we seek a cooperative approach to learning where we all take advantage of each others' strengths and skills in a collegial way, much as one would hope to find in a well-managed workplace.

Anatomy and Physiology requires serious and time-intensive dedication. A minimum of ten hours preparation, study and revision outside of class is needed to pass, and perhaps more time to really excel. Think of class as a quick orientation to what you need to learn during the rest of the week or over the weekend. I strongly encourage students to study together. Nonetheless, any plagiarism or violation of academic honesty in the preparation of class assignments, or during exams, will result in an instant "F" for the semester.

We have the special privilege, in this class, of working with human cadavers and human bones in the laboratory. This will usually involve "pro-sections" or professionally prepared preparations that you will view during the course of the lab. I believe that the presence of the cadavers (and other human specimens) deserves a special reverence and respect. People who donate their bodies do not receive any compensation and it is an astounding and worthy gift—one that merits remembering every time we enter the anatomy lab. Photographs may not be taken in lab and individuals not enrolled in the class are not allowed to enter the lab—you may not bring in friends or visitors. When we work with the cadaver, we normally just expose the areas that are of interest and keep the rest of the body covered with moist cloths.

## Disability Resources

If any student has a disability, including a learning disability, please contact the Yavapai College Learning Center and Disability Resources so that we can work together to arrange the accommodations that might be needed.

## Grade Tracker

Use this table to keep an updated record of your grades throughout the semester.

EVALUATION TOOL	Points possible	My points	% Grade (My points/Points possible)
EXAM 1	100		
PRACTICAL 1	100		
EXAM 2	100		
PRACTICAL 2	100		
EXAM 3	100		
PRACTICAL 3	100		
<b>WEEKLY QUIZZES</b>			
Week 1	10		
Week 2	10		
Week 3	10		
Week 5	10		
Week 6	10		
Week 7	10		
Week 8	10		
Week 11	10		
Week 12	10		
Week 13	10		
<b>Total for Semester</b>	<b>700</b>		

### **Showing your Dedication (and providing yourself with “grade border” protection)**

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I offer two optional opportunities to show your dedication to the class.

#### **Service Learning Volunteer (will wipe one exam grade--written or lab practical—highly recommended!).**

By signing up and completing one of the college’s volunteer service learning opportunities, you can wipe out your lowest exam score at the end of the semester. This provides insurance against that one “bad day” when you don’t perform as you would have liked on either a written or lab practical exam. To sign up, go the link on the course website home page. You must register, complete the hours, and provide me with a one paragraph report on what you did, and how it relates to Anatomy and Physiology. Most of the best options involve tutoring or helping in the Prescott public schools for one hour per week throughout the semester. I also think this is a great way to explore and demonstrate your humanitarian instincts, which hopefully are strong if you are intending to pursue a career in health or education.

#### **The Great Website Search (up to 10 points extra credit—half point per website).**

To earn these extra credit points, you must first do a tutorial on how to analyze website quality, and then find up to 20 websites over the course of the semester on our Outer tube social network. More details are available on the link from the course website home page.

Although neither of these opportunities will make a big point difference, they can be especially important if you are on a letter grade border and hope to achieve the higher grade.

# Human Anatomy and Physiology I: The “Outer Tube” Fall 2009 Schedule

Details for each week on course website: <http://faculty.yc.edu/lfrolich/>

Part I. The Basic Body Plan: Embryology, Tissues and the Skin			
Week 1 <i>Starts Aug 24</i>		Basic Body Plan and Embryology	Text Chapters: 1, 4, 29
Week 2 <i>Starts Aug 31</i>		Tissues: Epithelial, Connective	Text Chapters: 1, 2, 3, 4
Week 3 <i>Starts Sept 7 (no Mon)</i>		Skeletal Tissues, Skin	Text Chapters: 5, 6
Week 4 <i>Starts Sept 14</i>		EXAM ONE	All material from Weeks 1-3
Part II. The Body Axis and Limbs: Movement—nerves, muscles and bones			
Week 5 <i>Starts Sept 21</i>		Nervous System: Overall Organization	Text Chapters: 12, 13, 15, 16, 7
Week 6 <i>Starts Sept 28</i>		Neurons and Muscle	Text Chapters: 12, 13, 15, 16
Week 7 <i>Starts Oct 5</i>		Mechanics of Movement, Joints	Text Chapters: 10, 11
Week 8 <i>Starts Oct 12</i>		Upper Limb	Text Chapters: 8, 9, 11
Week 9 <i>Starts Oct 19</i>		Lower Limb	Text Chapters: 8, 9, 11
Week 10: <i>Starts Oct 26</i>		EXAM TWO	All material from Weeks 5-9
Part III. The Head: Feeding, Special Senses and Central Control			
Week 11 <i>Starts Nov 2</i>		The Skull	Text Chapters: 7
Week 12 <i>Starts Nov 9</i>		Throat	Text Chapters: 17, 11
Week 13 <i>Starts Nov 16</i>		Special Senses	Text Chapters: 14
Thanksgiving Week <i>Starts Nov 23</i>		Turkey Dissection	
Week 14 <i>Starts Nov 30</i>		Brain	Text Chapters: 14, 16
Week 15 <i>Starts Dec 7</i>		EXAM THREE	All material from Weeks 11-14