BI302-001 / BI 302L LECTURE AND LABORATORY SYLLABUS: WINTER 2017

This syllabus contains an abundance of information about the lecture and laboratory course. Please DO NOT email the instructor for information until you have completely reviewed this syllabus.

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BI302-001 (Dr. Hancock) Lecture Syllabus

Course Number: BI 302 – Section 001 / CRN 40428  
Course Title: Human Anatomy & Physiology II  
Term/Year: Winter 2017  
Meeting Times: M,W,F 12:30-1:20 pm @ 1A 001 (CLSB Atrium, South Waterfront)  
Professor Name: Dr. Thomas V. Hancock (Ph.D.)  
Contact Information: Offices: CLSB South Tower 522 066 & Office 2: Science Building 1, Room 218  
Phone: 503-725-2331 / Email: thancock@pdx.edu  
Office Hours: Tuesday 10-11 am / Wednesday 11 am – 12 pm in CLSB Office. I also stay late after lecture on Fridays (1:20-2:30) before subsequent Monday lecture exams and will also designate office hours during finals week.

Contacting Dr. Hancock: The best way to contact me is by attending designated office hours, by email, or by talking to me directly before or after lecture. You may also call me during office hours, but please email me rather than leaving me a message on my phone (I don’t have a blinking light or anything that tells me that I have a message). If you cannot make office hours, I am willing to find time to meet with you, please email me as necessary. Relative to Email: Please only use your pdx.edu email account to contact myself or any of the laboratory assistants. I will not respond to other emails as I cannot be sure that you are who you say you are. Also, utilize a header with the course number and a brief description of the topic (ex. “BI301: Topic”). Finally, if I do something that you appreciate, please DO NOT send an email thanking me … while I appreciate the sentiment, I receive hundreds of emails per week. Thank me in person if you get the chance.

BI302L: The accompanying laboratory (BI 302L) is run as a separate course from the lecture (BI 302) although the information is integrative. You will receive one single grade combining your lab and lecture score. Further information for the laboratory can be found on the laboratory syllabus below.

Exam Dates: Important dates, see below for details.
Exam 1: Monday Week 4: January 30th during lecture period  
Exam 2: Monday Week 8: February 27th during lecture period  
Exam 3: Thursday Final’s Week: March 23rd 12:30-2 pm in the lecture hall

Online Resources:
- **D2L**: The “Desire to Learn” online software will be used to communicate important information in the course and to deliver important documents. Please be sure you are aware how to access the course website as soon as the course starts (D2L.pdx.edu). Login with your PSU username and password.
- **Echo 360**: This online resource records the lecture audio and video and makes it accessible online. This is very useful for when you must miss a lecture, or if you wish to review the lecture. A link to this will be available through the D2L page, “Introductory Material” Module under “Course Content” after the course begins.
- **Connect**: [http://connect.mheducation.com/](http://connect.mheducation.com/) . This is the online learning platform that includes the online ebook for our textbook along with a number of other resources. Lecture assignments will include chapter previews and quizzes that assess the basics of each chapter that is relevant to the lecture. These assignments are optional for your review. They appear to be quizzes and include points, but no points from Connect assignments will be applicable to your lecture grade or lab grade. See the separate “Textbook Information” and “Connect Information” information below for more information and how to sign up and register for Connect, your ebook access, and how to order a physical text online at a large discount in comparison to the bookstore prices. The link to the specific Lecture Connect Course for Dr. Hancock’s Lecture section is: [http://connect.mheducation.com/class/t-hancock-bi301-lecture-hancock-fall-2016](http://connect.mheducation.com/class/t-hancock-bi301-lecture-hancock-fall-2016)  
However, do not access this until you have read the “Textbook Information” and “Connect Information” and have already registered for the Connect Laboratory course.

Required Materials:
- This is the only required resource for both lecture and lab of BI301, 302 and 303. We cannot condone use of another textbook or a previous version of Saladin. See the “Textbook Information” and “Connect Information” section of this syllabus for information on how to purchase. There are also a couple of optional but recommended histology textbooks (choose 1 of 2) that support laboratory, see the laboratory syllabus below.
### Lecture Course Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date (Mon)</th>
<th>Lecture Topic</th>
<th>Chapters*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 9</td>
<td>Nervous Tissue / Spinal Cord</td>
<td>12,13</td>
</tr>
<tr>
<td>2</td>
<td>Jan 16</td>
<td>Brain</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>Jan 23</td>
<td>MLK Holiday, no class on Monday Jan 23rd</td>
<td>14, 16</td>
</tr>
<tr>
<td>4</td>
<td>Jan 30</td>
<td>Lecture Exam 1: Monday January 30 (Chapters 12-14)</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>Feb 6</td>
<td>Somatic &amp; Autonomic Motor Systems</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Feb 13</td>
<td>Somatic &amp; Autonomic Motor Systems / Endocrine</td>
<td>16, 17</td>
</tr>
<tr>
<td>7</td>
<td>Feb 20</td>
<td>Endocrine / Blood</td>
<td>17, 18</td>
</tr>
<tr>
<td>8</td>
<td>Feb 27</td>
<td>Lecture Exam 2: Monday Feb 27 (Chapters 15,16,17)</td>
<td>18, 19</td>
</tr>
<tr>
<td>9</td>
<td>Mar 6</td>
<td>Heart</td>
<td>19</td>
</tr>
<tr>
<td>10</td>
<td>Mar 13</td>
<td>Blood Vessels</td>
<td>20</td>
</tr>
<tr>
<td>11</td>
<td>Mar 20</td>
<td>Finals Week, Exam 3: Thursday March 23rd at 12:30-2:00 pm in CLSB Lecture Hall 1A001.</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The generally pertinent chapters for each section of lecture are listed above. A detailed outline and reading assignment are provided in the Lecture Outline and Reading Assignment section of this syllabus (see below).*

### Grading:

<table>
<thead>
<tr>
<th>Exams</th>
<th>% of Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Exam 1</td>
<td>18%</td>
</tr>
<tr>
<td>Lecture Exam 2</td>
<td>18%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>24%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

Assigned Grades will be based on the following scale:

- A = 93-100%
- B = 83-86%
- C = 73-76%
- D = 63-66%
- A- = 90-92%
- B- = 80-82%
- C- = 70-72%
- D- = 60-62%
- B+ = 87-89%
- C+ = 77-79%
- D+ = 67-69%
- F = <60%

- The instructor reserves the right to make the curve more generous than stated above
- There is NO opportunity for extra credit.

### Other Policies:

- **Lecture Style:** Dr. Hancock employs an extremely novel and innovative pedagogical technique called “writing out the notes as he speaks”. While he occasionally employs powerpoints and animations in lectures for specific topics, for the majority of time he talks while writing down the most important points while you take notes. This may be new to you, but most of my students find that over time they grow to enjoy it very much and that it effectively promotes learning.

- **Attendance:** Students are expected to attend all lectures and **required** to attend all lab meetings. Please arrive in a timely manner. However, you do not need to notify me of your absence from lecture as role is not taken but it is incumbent upon you to get the information from lecture from another student or from Echo360, the audiovisual lecture recording.

- **Exams:** Lecture exams heavily emphasize material presented in lecture though an occasional question from the reading may be included on exams. Lecture exams are multiple choice: Exams 1 & 2 are 50 questions in length and the final exam is 67 questions with 50 questions on on the new Exam 3 Material, and an additional 17 comprehensive questions covering all previous material. Copies of old exams will be made available within the D2L site. The comprehensive questions on the final are intended to be “big picture” questions of major concepts that were likely heavily emphasized, possible several times. The comprehensive questions are not intended to included minor “factoids” from previous exams. Please concentrate your studying learning the new material to be sure you do well on the 50 questions. Once that
material is integrated, and if you still have time remaining, try to study your lecture notes and problem sets from the first two exams to study for the comprehensive exam.

- **Exam Days:** Please arrive on time, if you are late you will only be given the remaining time to finish the exam. Bring a scantron form to class with you for all exams, Form SC982-E (available in bookstores, full page sized blue form) is the only form that can be used. Fill in the scantron form with your Name (Last, First) and your PSU ID number before coming to class. Please bring your PSU student ID to class, these will be checked when turning in exams.

- **There are NO makeup exams. You must take EVERY lecture exam and lab practical at the assigned time. These can only be made up in the event of documentable emergencies, in which case an incomplete grade will be assigned and the exam will be made up the following summer or the following academic year (Fall 301, Winter 302, or Spring 303) when the course is offered again (see syllabus section on Incompletes below). You must be passing the course with a C- or better and only a single exam or practical can be made up in this manner.**

- **Academic honesty statement:** Cheating or any kind of academic dishonesty will not be tolerated. Students caught cheating will, at a minimum, receive a zero on the exam and be reported to the office of the Dean of Student Life at PSU. If you are unclear about the policies related to academic misconduct and the student conduct code, see: “www.pdx.edu/dos/psu-student-code-conduct”.

- **Problem Sets:** Problem sets will be assigned throughout the quarter. These are not turned in or graded and answers are not provided. While not comprehensive for the material (not a study guide), examples of most categorical concepts will be included, and most logical process based topics will be covered. Problem sets are a very good indication of the range of material that the instructor finds reasonable to place upon the exams. You may review your answers to problem sets during office hours, but successful students often form groups to go through the problem sets together.

- **Study Skills:** This is an advanced biology course. Students should be prepared to spend a great deal of outside time on this course. Keeping up on the material is imperative, and studying the material from lecture within a day will allow you to better comprehend the following lecture. Reading alone will be substantial … but reviewing notes, doing problem sets, and laboratory work will also require a great deal of time. Lecture material may be reviewed with the instructor during office hours.

- **Prerequisites:** Introductory biology and chemistry prerequisites are not enforced, but are very helpful for the highly integrative nature of this course.

- **Contacting Dr. Hancock:** Please utilize office hours whenever possible or email me to make alternate arrangements if you absolutely cannot make those office hours. Quick questions may be asked by email. If you email me, ONLY use your pdx.edu email account. Please use the subject line “BI301 Lecture”. Please attach a recognizable photo of yourself to your pdx.edu gmail account, I prefer to know who I am communicating with. You may attempt to call me on the telephone, but an email is preferred to leaving a message on the phone.

- **Reading Assignments and Studying for the Course:** My general advice for studying is to survey the reading beforehand to become familiar with the general systems, and especially to become familiar with the vocabulary, so that you will be able to comprehend the lecture which proceeds quickly. I have detailed the reading for each chapter specifically as to what is more or less important as we proceed through the course. After attending lecture, study your notes and use your textbook to understand the concepts that I emphasize in lecture as that is what will primarily be tested on the exams. Problem Sets should be used to determine whether you understand the material after studying it, and are especially good for group work.

- **Using Connect with Lecture:** The lecture course will only use the online learning platform for basic chapter reviews, while we have put much more emphasis on Connect in the lab. I suggest you use Connect for lecture to preview the material before lecture. Basically I set this to only test the most essential concepts of the relevant sections of chapters. You might try the “Read” option which shows the ebook with highlights for the most essential material, or the “Practice” mode which quizzes you on that most essential information. After I have lectured on the material you may want to revisit the book and you will realize I actually covered much more than those most essential elements and you can read the entire chapter with an emphasis on what you know I have covered.

### Sexual Harassment and Interpersonal Violence:

As an instructor, one of my responsibilities is to help create a safe learning environment for my students and for the campus as a whole. As a member of the university community, I have the responsibility to report any instances of sexual harassment, sexual violence and/or other forms of prohibited discrimination. If you would rather share information about sexual harassment, sexual violence or discrimination to a confidential employee who does not have this reporting responsibility, you can find more information and a list of those individuals at (http://www.pdx.edu/sexual-assault/get-help). For more information about Title IX please complete the required student module “Creating a Safe Campus” in your D2L (http://www.pdx.edu/sexual-assault/safe-campus-module).
Learning Objectives for Lecture:
- Understanding nervous tissue and the structure and function of the spinal cord and brain
- Understand the relationship between the nervous system and the endocrine system.
- Understand the nature of the endocrine hormones, their sources, their targets, and their effects.
- Understanding the sensory input pathways to the brain and motor output pathways from the brain.
- Understanding how sensory and motor systems are coordinated by the brain and spinal cord.
- Understanding the nature of blood.
- Understanding the structure and function of the cardiovascular system.
- Understanding the lymphatic system in relation to the cardiovascular system.

Skills Development in Lecture:
- Defining the three principal functions of the spinal cord and describe its gross and microscopic structure.
- Tracing the pathways followed by nerve signals traveling up and down the spinal cord.
- Describing the major subdivisions and anatomical landmarks of the brain and the locations of its gray and white matter.
- Explaining how the autonomic and somatic nervous systems differ in form and function.
- Explaining how the two divisions of the autonomic nervous system differ in general function.
- Defining receptor and sense organ.
- Defining the four kinds of information obtained from sensory receptors, and describe how the nervous system encodes each type.
- Outlining the three ways of classifying receptors.
- Describe the hypothalamic-pituitary axis and the complex hormonal interactions that occur there.
- Define the chemical structure of hormones and the way that they exert their influence on their target organs.
- Describing the functions and major components and physical properties of the blood and circulatory system.
- Describing the composition of blood plasma.
- Explaining the significance of blood viscosity and osmolarity.
- Describing in general terms how blood is produced.
- Defining and distinguishing between the pulmonary and systemic circuits.
- Describing the general location, size, and shape of the heart.
- Describing the pericardial sac that encloses the heart.
- Explaining the way by which the heart generates force and how cardiac output is controlled.
- Describing the structure of a blood vessel.
- Describing the different types of arteries, capillaries, and veins.
- Tracing the general route usually taken by the blood from the heart and back again.
BI302 Lecture Outline & Reading Assignment

The lecture outline and reading assignments are listed for the material covered by Exam 1, Exam 2 and Exam 3. Chapters from Saladin 7th ed. are referenced along with the subsections of each chapter. Lecture outlines are listed here for each section of the course to help students keep pace with the lecture material, but are subject to change. Reading Assignments indicate the most pertinent material in each chapter. Note: “Deeper Insights” subsections of the book are not required material unless specifically mentioned during lecture. If mentioned, they are good to read but only required to understand at the level discussed during lecture. Everything else in the assigned sections of the book is fair game though I strongly emphasize what is discussed in lecture on exams. Remember though that if you are trying to become a clinician of any kind, reading ALL of the book will help you become a better one and understand the material more comprehensively. The pertinent reading is important, it gives you a second perspective on the material relative to my lecture information and is generally well written and organized and will increase your understanding.

Outline & Reading Assignments for Exam 1

A. NERVOUS SYSTEM AND NERVOUS TISSUE (READING: CHAPTER 12. MOST OF THIS CHAPTER IS PERTINENT TO OUR COURSE)
   1. OVERVIEW (12.1)
   2. NEURONS (12.2)
      a. Multipolar
      b. Bipolar
      c. Unipolar / Pseudounipolar
      d. Anaxonic
   3. REFLEX ARC (12.2)
   4. NEURON MACROSTRUCTURES
   5. NEUROGLIA (12.3)
   6. AXONS & ACTION POTENTIALS
      a. Axonal Transport (p. 441)
      b. AP Formation (Reading 12.4. Membrane potential, local (graded) potentials, and action potentials were covered in BI301, please review these concepts as we will only cover them briefly but full understanding is required.)
      c. Action Potential (AP) Propagation (12.4)
      d. Classification of Axons: Speed
   7. SYNAPTIC TRANSMISSION (READING: 12.5. THE BASIC MECHANISMS INVOLVED IN ALL SYNAPSES WERE DISCUSSED IN BI301, PLEASE REVIEW AS WE WILL ONLY COVER THEM BRIEFLY.)
      a. Synapse
      b. Neuron Classification: NT Type
      c. Structural Types of NT
      d. NT Receptors
      e. Post-Synaptic Receptor Types:
      f. Post-Synaptic Membrane Potential Changes
   8. NEUROTRANSMITTER AND RECEPTOR EXAMPLES (12.5)
      a. Glycine and GABA
      b. Glutamate \(\rightarrow\) NMDA and AMPA receptors
   9. NEURAL INTEGRATION (12.6)
      a. Spatial Summation:
      b. Temporal Summation
      c. Temporal & Spatial
   10. NEURAL PATHWAYS (12.6)
   11. PRESYNAPTIC INHIBITION

Reading for Outline Below: Chapter 13 and 14. Unfortunately it is difficult to be specific about the specific details that I will include from Chapter 13 and 14, many of those details will not be covered to the level of the book, so it is especially critical to go over your lecture notes and use the textbook to support your studying only where appropriate. Much of the material in these chapters is relevant either to lab or lectures. Specifically relevant to lecture (in parts where applicable): 13.1; 13.2; 14.1 (except development); 14.2; 14.3 and 14.4 to the level discussed in lecture. As always, “deeper insight” sections within the textbook are not testable unless specifically mentioned during lecture.
B. CENTRAL NERVOUS SYSTEM
1. CNS BASICS
   a. Lateralization
   b. Brain
   c. Spinal Cord
2. NERVES
   a. Spinal Nerves
   b. Cranial Nerves
3. MENINGES & CSF CIRCULATION
4. BLOOD BRAIN BARRIER
5. BLOOD SUPPLY TO BRAIN

C. CNS SPECIFICS
1. SPINAL CORD
2. BRAIN
   a. Myelencephalon
   b. Metencephalon
      i. Pons
      ii. Cerebellum
   c. Mesencephalon
   d. Diencephalon
3. TELENCEPHALON
   a. Overview
   b. Mapping
   c. Lateralization
   d. Language Centers
   e. Frontal Lobe

D. INTEGRATIVE BRAIN SYSTEMS
1. BRAIN STEM
2. LIMBIC SYSTEM
3. RETICULAR FORMATION
4. DOPAMINERGIC PATHWAYS OF THE BRAIN

E. CIRCADIAN CYCLES

F. SENSORY SYSTEMS: READING: MOST OF CHAPTER 16 IS GOOD TO READ AT A BASIC LEVEL. WE WILL BEGIN WITH BASIC CONCEPTS (16.1) AND THEN THE GENERAL SENSES (16.2).
1. SYSTEMS
2. MODALITIES
3. SENSOR STRUCTURAL CLASSIFICATION
4. TRANSDUCTION
   a. Receptor Potential Formation
   b. Graded Potential \rightarrow Action Potential
5. PROJECTION, MAPPING & DISCRIMINATION
6. SENSORY CODING
7. ADAPTATION
   a. Peripheral Adaptation
   b. Central Adaptation
8. PAIN
   a. Transduction
   b. Pathways
   c. Pain Adaptation
10. PROPRIOCEPTION
    a. Muscle Receptors
    b. Joint Receptors
    c. Injury / damage to Proprioceptors
Outline & Reading Assignments for Exam 2

A. SPECIAL SENSES (READING: 16.3-16.5. MUCH OF THIS IS REDUNDANT WITH YOUR LAB MATERIAL WHICH I WILL NOT COVER AGAIN, BUT I WILL INSTEAD FOCUS ON THE PHYSIOLOGY AND THE NERVOUS PATHWAYS.)
   1. VISION: EXTRINSIC FEATURES
   2. VISION: INTRINSIC
      a. Fibrous Tunic
      b. Vascular Tunic
      c. Nervous Tunic
      d. Photoreceptors
      e. Transduction
      f. Accommodation
      g. Neural Pathways
      h. Lateralization
   3. AUDITORY
      a. Anatomy
      b. Sound: Pitch & Intensity
      c. Transduction
      d. Auditory Nervous Pathways
   4. EQUILIBRIUM
      a. SC Canals:
      b. Utricle / Saccule
      c. Equilibrium Nervous Pathways: Both
   5. OLFACITION
      a. Olfactory Receptors
      b. Transduction
   6. GUSTATION

B. SOMATIC MOTOR PATHWAY (READING: MOTOR CONTROL WITHIN 14.5 BEGINNING P. 536 AND THEN SOMATIC REFLEXES IN 13.3)
   1. MOTOR CONTROL
   2. BASAL NUCLEI
   3. REFLEXES VS. BEHAVIOR
   4. SOMATIC REFLEX: STRETCH REFLEX
   5. SOMATIC REFLEXES: FLEXOR (WITHDRAWAL) REFLEX

C. AUTONOMIC MOTOR SYSTEM (READING: CHAPTER 15)
   1. OVERVIEW
   2. SYMPATHETIC
      a. General Characteristics
      b. Exceptions to Rules
      c. Adrenergic Receptors
   3. PARASYMPATHETIC
      a. General Characteristics
      b. Cholinergic Receptors
   4. AUTONOMIC REFLEXES

D. ENDOCRINE OVERVIEW (READING: ALL OF THE MATERIAL IN THE FOLLOWING SECTIONS ARE COVERED BY CHAPTER 17)
   1. ENDOCRINE vs. EXOCRINE GLANDS
   2. ENDOCRINE vs. NERVOUS SYSTEM
   3. HORMONES
   4. FUNCTION
   5. STRUCTURE
      a. Amino Acid Derivatives
      b. Peptide Hormones
      c. Lipid Derivatives
E. HYPOTHALAMUS AND PITUITARY
1. POSTERIOR PITUITARY (PP)
   a. ADH: Antidiuretic Hormone
   b. Oxytocin
2. ANTERIOR PITUITARY (AP)
   a. Thyroid Hormone
   b. Growth Hormone
   c. Prolactin
   d. Gonadotropins
   e. ACTH
3. MELANOCYTE STIMULATING HORMONE

F. ADRENAL GLANDS
1. ADRENAL MEDULLAE
2. ADRENAL CORTEX
   a. Glucocorticoids
   b. Mineralocorticoids
   c. Sex Steroids

G. PANCREAS

H. OTHER ENDOCRINE HORMONES / GLANDS
1. MELATONIN
2. PARATHYROID HORMONE / CALCITONIN
3. RENIN-ANGIOTENSIN II SYSTEM
4. ANP
5. GI HORMONES
6. PLACENTAL HORMONES
7. LEPTIN

8. EPO
Outline & Reading Assignments for Exam 3

A. BLOOD (READING: CHAPTER 18. THE ENTIRE CHAPTER IS USEFUL INFORMATION EXCEPT FOR SPECIFIC SECTIONS SPECIFIED BELOW THAT WILL BE EXPLAINED WITH THE IMMUNE SYSTEM IN BI303.)

1. CHARACTERISTICS OF BLOOD (READING: A1-A4 ON THE OUTLINE ARE COVERED BY SECTION 18.1 OF THE BOOK.)
2. PLASMA
   a. Water
   b. Plasma Proteins
   c. Solutes (Other)
3. ERYTHROCYTES (READING: 18.2. NOTE THAT 18.3 ABOUT BLOOD TYPES WILL BE COVERED DURING IMMUNOLOGY IN BI303)
   a. Characteristics
   b. Quantifying
   c. Anemia
   d. Polycythemia
4. LEUKOCYTES (READING: 18.4. WE WILL NOT DISCUSS MUCH ABOUT THE FUNCTIONS OF WHITE BLOOD CELLS UNTIL IMMUNOLOGY IN BI303)
5. THROMBOCYTES (READING: 18.5)

B. HEMOSTASIS (READING: CONTINUE WITH 18.5)

1. DEFINITIONS:
2. STEPS IN HEMOSTASIS
   a. Vascular Spasm
   b. Platelet plug formation
   c. Coagulation of Fibrin
   d. Clot Retraction
   e. Clot Dissolution
3. PATHOPHYSIOLOGY
   a. Overclotting
   b. Underclotting
   c. Pharmacology
   d. Thrombolytic Agents:

C. CARDIOVASCULAR OVERVIEW (READING 19.1)

D. CARDIAC MUSCLE: READING: CH. 19. WE HAVE COVERED ANATOMY (19.2) IN LAB. REVIEW THAT AND FOCUS ON THE REST OF THE CHAPTER WHICH IS GOOD READING TO DO. NOTE: CARDIAC MUSCLE FUNCTION AT THE CELLULAR LEVEL WAS COVERED IN BI301. TO REVIEW, YOU CAN LOOK AT THE ECHO LECTURES THAT REMAIN ONLINE FROM THE FALL QUARTER.

E. HEART (READING: CONTINUE WITH CHAPTER 19, ALL OF THIS CHAPTER IS GOOD INFORMATION)

1. HEART ANATOMY & FUNCTION
   a. Thoracic Cavity
   b. Layers of Heart:
      c. Chambers, Valves, Flow & Major Vessels

F. CARDIAC CYCLE (READING: CONTINUE WITH CHAPTER 19)

1. PASSIVE VENTRICULAR FILLING
2. ATRIAL SYSTOLE: ACTIVE VENTRICULAR FILLING
3. VENTRICULAR SYSTOLE: CONTRACTION
4. VENTRICULAR DIASTOLE: RELAXATION
5. SUMMARY

G. CONDUCTION SYSTEM (READING: 19.4)

1. CONDUCTIVE MYOCYTES
2. AUTORHYTHMICITY
3. SINOATRIAL NODE
4. GAP JUNCTIONS
5. CONDUCTION PATHWAY
   a. Depolarizes Atrial Contractile Myocytes
b. Atrioventricular Node  
c. Bundle & Bundle Branches  
d. Purkinje Fibers  
e. Ventricular Contractile Myocytes  

H. CARDIAC OUTPUT (READING: 19.6)  
1. CONTRIBUTORS TO CO  
2. PRELOAD  
3. AFTERLOAD  

I. REGULATION OF CARDIAC OUTPUT (READING: 19.6)  
1. SYMPATHETIC NS  
   a. Increase HR  
   b. Increase SV  
   c. More Rapid Cardiac Muscle Relaxation  
2. PARASYMPATHETIC NS  
3. AUTONOMIC ADJUSTMENTS  

J. BLOOD VESSELS (READING: CHAPTER 20 FOR THE REMAINDER OF THIS MATERIAL. NEARLY ALL OF THIS CHAPTER IS USEFUL INFORMATION THAT WILL SUPPORT LECTURE).  
1. PRESSURE  
2. VESSEL TYPES  
   a. Arteries  
   b. Arterioles  
   c. Capillaries  
   d. Veins & Venules  

K. DISTRIBUTION OF BLOOD  
1. AUTONOMIC  
2. MYOGENIC CONTROL  
3. HORMONAL  
4. METABOLIC REGULATION  
   a. Ex. Very Active Tissue:  
   b. Ex. Inactive Tissue  
5. MAJOR PATTERNS OF DISTRIBUTION  
   a. Rest  
   b. Exercise  
6. EXERCISE VS. SYMPATHETIC STIMULATION  

L. CAPILLARY EXCHANGE  
1. TRANSPORT MECHANISMS  
   a. Diffusion  
   b. Vesicle Transport  
   c. Mediated Transporters  
2. BULK FLOW: FILTRATION & REABSORPTION  
   a. Hydrostatic Pressure  
   b. Osmotic/Oncotic Pressure  
   c. Net Effect  
   d. Blood Volume Homeostasis
BI302L Laboratory Syllabus

Course Number: BI 302L
Course Title: Human Anatomy & Physiology II Laboratory
Meeting Times: See Table below
Lab Times & Locations: CLSB 2nd Floor in the North Tower 2nd floor: 2N 103, 2N 108A, 2N 109 (See Schedule Below)
Teaching Assistants: See Table below **To be updated in future edition of syllabus**
Course Coordinator: Dr. Thomas V. Hancock (Ph.D.); Campus Phone: 503-725-2331; email: thancock@pdx.edu

NOTE: A complete lab occurs during the first meeting. If you are more than 15 minutes late to the first lab you may be dropped from that section if other students are seeking a spot in that lab. If no students show up to claim an empty spot, the student may come to lab during the second lab meeting and resume the course, but will not be contacted if their spot has been filled so may show up and find that they have lost their spot.

Accommodations: If you require accommodations for this course, see the DRC Accommodations section of this document and let your Teaching Assistant know about this as soon as possible in order to make arrangements.

<table>
<thead>
<tr>
<th>CRN</th>
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<th>Time</th>
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Materials & Online Resources:


There is no separate laboratory manual, the lecture textbook contains most supporting information for the lab. For each lab (A, B, etc), a handout will be made available along with informative powerpoints (posted as a PDF) that the teaching assistants use for instruction. These materials contain all information necessary for lab and will be posted on D2L and will also be accessible for review on tablets provided in the lab for student use. For labs that have lab exercises or physiology labs, there may also be a separate procedures document.

Optional Materials:

There are a pair of optional laboratory histology textbooks that will be stocked by the bookstore or available online. Histology, the microscopic analysis of tissues, is taught in the lab though our textbook does not fully cover it to the same extent. These are optional and are intended to help you with histology which will be utilized more and more as we proceed throughout the year. If you desire a supplemental text, choose one of these two titles:

- LEBOFFE/PHOTOGRAPHIC ATLAS OF HISTOLOGY 2nd ed isbn 1617310689
- YOUNG/WHEATERS FUNCTIONAL HISTOLOGY 6th ed isbn 9780702047473

The first is more basic and better suited to the scope of our course and is less expensive. The second is one of the premiere texts on histology and has greater depth and if you engage in a clinical program or take a formal histology course in the future, this may be a more useful reference. However, much of the information packed within is beyond the scope of our course. Older used versions of Young/Wheaters are also great references and are much cheaper online.

Online Computer Systems:

D2L: The “Desire to Learn” online software will be used to communicate important information in the course and to deliver important documents. Please be sure you are aware how to access the course website as soon as the course starts. To begin, go to: D2L.pdx.edu. Login with your PSU username and password, and the courses that you are enrolled in will appear when activated by the instructor.

Connect: Connect (http://connect.mheducation.com/) is the online learning platform that includes the online ebook for our textbook along with a number of other resources. Assignments will be provided to review much of the material from each lab. These assignments are optional for your review. They appear to be quizzes and include points, but no points from Connect assignments will be applicable to your grade. See the separateate “Textbook Information” section of this document for more information and how to sign up and register for connect, your ebook access, and how to order a physical text online at a large discount in comparison to the bookstore prices.
**Laboratory Schedule, Topics, and Open Lab Availability:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Mon Date</th>
<th>Lab</th>
<th>Exams</th>
<th>Material</th>
<th>Open Labs</th>
</tr>
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<tbody>
<tr>
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<td>1/9</td>
<td>A</td>
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<tr>
<td>2</td>
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<td>Lab A Quiz</td>
<td>Spinal Cord, Spinal Nerves &amp; Peripheral Nerves</td>
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<tr>
<td></td>
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<td></td>
<td>Histology of Nervous System</td>
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<td>Lab B Quiz</td>
<td>Gross Anatomy &amp; Histology of Vision</td>
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<tr>
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<td>Gross Anatomy &amp; Histology of Hearing &amp; Equilibrium</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>Eye Dissection Exercise*</td>
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<td>4</td>
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<td>Lab C Quiz</td>
<td>Reflex &amp; Special Senses Physiology Lab**</td>
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<td>Practical 1</td>
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<tr>
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<td>Blood Physiology Lab **</td>
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<td>Lab E Quiz</td>
<td>Endocrinology II</td>
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<td>Heart anatomy, pig heart dissection*</td>
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<td>2/27</td>
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<td>Gross Anatomy of blood vessels</td>
<td>M/F</td>
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<td>Histology of Blood Vessels &amp; Cardiac Muscle</td>
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<td></td>
<td></td>
<td>Blood Vessel Exercise*</td>
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<tr>
<td>9</td>
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<td>Cardiac Physiology Lab**</td>
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<td>Practical 2</td>
<td>Testing Labs E-H</td>
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</table>
Lab Schedule: To be updated in future edition of syllabus to include Teaching Assistant Info and Open Lab Times. Locations of sections may change to different rooms to balance student usage.
Grading & Exam Information:

Lab Scoring (40% of the entire course grade)
- Quizzes (5 of 6 @20 points each, drop lowest)  100 pts
- Practical 1  130 pts
- Practical 2  130 pts
- Lab Exercises* (3 @ 10 pts apiece)  30 pts
- Physiology Labs** (3 @ 30 pts apiece)  90 pts

480 total points

Quizzes and Practicals

- Quizzes and Practicals are done in a “practical” format, where the majority of questions will consist of indicated anatomical features on models, diagrams, microscope slides or cadavers. You will be required to name each feature. Physiological concepts from labs are asked in various other ways, sometimes including naming or defining of concepts but often utilizing multiple choice, matching, fill-in-the-blank, etc.
- Quizzes and Practicals will begin promptly at the beginning of the lab period. If you are late, you will have only the time remaining in which to finish.
- Quizzes will have 10 questions, Practicals will have 65 questions. Each question is worth 2 points.
- Quizzes will cover the material from the previous lab and are intended to motivate you to study on a weekly basis.
- Practicals are more important to your grade as they are where the majority of lab points are potentially gained, and will test your knowledge to a greater depth than quizzes.
- Spelling counts, including proper use of singular/plural forms. 25% (1/2 point) will be deducted from each 2 point question if misspelled with a maximum of 10% deduction from the entire quiz or practical.
- If you miss a quiz for any reason, it will automatically become your dropped quiz, which is why we allow a drop. If you document a medical event or emergency, you may be allowed to reschedule a second quiz if another documentable event occurs. In the event of a documented absence you may be able to schedule makeup time in the lab.
- If you miss a practical without prior arrangement or a documentable emergency, you will not be allowed to take the practical at another time and will receive a zero. If you can document your medical event or emergency you may be allowed to take the practical during a later lab, but if that is impossible you will be allowed to take an incomplete in the course and complete the practical the next time the course is offered (see syllabus section on Incompletes below). In no event will a practical be offered outside of the normal laboratory practical schedule.

Academic Honesty Statement:

- Cheating or any kind of academic dishonesty will not be tolerated. Students caught cheating will, at a minimum, receive a zero on the assignment and be reported to the office of the Dean of Student Life at PSU. Additional consequences may result from this report according to University policies on academic dishonesty. Please review the student conduct code if you are unfamiliar with it at: http://www.pdx.edu/dos/psu-student-code-conduct

Human Cadavers and Chemical Exposure:

- We will be working with human cadavers throughout the course. Non-latex gloves and lab coats will be provided to you and are required for all cadaver contact.
- Cadavers are preserved using some potentially harmful chemicals, primarily formaldehyde and phenol. Copies of relevant MSDS are available upon request. Some sources say that these chemicals are especially dangerous if you are pregnant, nursing, or planning on becoming pregnant soon. The good news is that the ventilation system is excellent and the Environmental Health and Safety department has determined that levels are well below any level that is considered unsafe. That being said, the levels are not zero, and it is impossible to properly study the effects of these chemicals on pregnant or nursing humans. Please consult your health care provider about whether you should consider not taking the course, especially if you are pregnant, nursing or planning on becoming pregnant, or whether you should choose to purchase a respirator mask and have it fitted properly (an unfitted mask is next to worthless).
- If you are interested in purchasing and being properly fitted for a respirator before work in the cadaver lab begins, you can contact Sanderson Safety Supply. Because the levels are confirmed as safe the university will not pay for it and you must do it at your own expense. Half Face masks sell for between $22 - $40 and full face masks range between $115 - $400. The actual fitting that ensures no air flow around the mask costs $35. The area of contact must be clean shaven, full beards are not compatible with half masks, which is the only reason that you would probably want or need a full face mask. Fitting times are 8:30-11 am and 3-4 pm on Monday through Friday. No appointment is necessary, only walk-ins. Sanderson Safety Supply: 1101 SE 3rd Ave.; Portland, OR 97214; Phone: 503.238.5700
General lab policies and protocols:
- Laboratory attendance is mandatory. More than one absence from lab may result in automatic failure or require you to take an incomplete.
- Preparation for lab before you arrive is expected. This will make your learning more efficient during the limited time in lab. It is expected that you will stay for the entire lab period.
- Open Labs: A schedule of open labs is provided above. These allow you a further opportunity to study in the lab using the materials upon which you will be tested. Graduate teaching assistants will be present to answer questions.

Observe the posted dress code:
- Exposed skin below the shoulders is forbidden. No exceptions. Inappropriately dressed individuals will be denied entry and will not be allowed to take exams. This dress code is for your own protection, is required by law, and is also generally representative of professional clinical settings. Entrance into the cadaver lab without proper attire is grounds for expulsion from the course.

Laboratory Behavior and Expectations:
- **NO CAMERAS WILL BE PERMITTED IN LAB. NO PHOTOGRAPHY / VIDEOGRAPHY IS EVER ALLOWED IN THE ANATOMY LAB for reasons of privacy and to preserve the dignity of the deceased.** Cell phones are regarded as cameras and CANNOT be used in the A&P lab, please exit the classroom if you need to make or accept a call. Please turn off or silence your cell phones prior to entering the lab. Most tablets and laptops have cameras; you are **required** to put tape over the camera lens if you utilize any of these devices in the laboratory. Due to the sensitive nature of the environment and need for professionalism, violations of these standards will result in **IMMEDIATE EXPULSION** from the Anatomy Lab and formal disciplinary actions may be taken.
- Provided equipment in the lab is delicate and expensive. For example, we are fortunate to have an ample supply of real human bones to study and will only be handled on the provided carpet pads at each station. Inappropriate handling or damage to these or any other equipment may result in expulsion from the lab.
- Food and Drink: Covered drinks or bottles may be kept in the designated areas of the lab and used there, away from the study tables. Eating in the lab is prohibited, please take a break and go outside the lab to eat.
- Observe all protocols regarding cadaver contact and handling. Failure to observe standards will result in loss of points and/or disciplinary action. No guests are ever allowed anywhere in the lab without specific permission from the lab instructor.
- Cleanup & Respect: Students should maintain an orderly workspace at all times. Points may be deducted from your quiz scores for failing to properly maintain the lab space. Students should recognize the need for due respect being displayed to the TA and their fellow students. Displays of inappropriate language, threats, aggression or violence of any sort will not be tolerated, will result in immediate removal from the classroom and be reported to the office of the Dean of Student Life.
- The TAs will do their best to answer your questions regarding lab, but if you have questions about your professor’s lectures or exams, it is best to ask your lecture professor.
Adding the Lab, Waitlists, and Switching Labs:

- Computer registration is the only way to enroll before classes begin. If you are searching for a spot and want to search all sections simultaneously: Log in to Banweb → Student Services → Registration and Class Schedule → Look Up Classes to Add → Select the term to search → Advanced Search → Select Biology as the Subject and the Class as 301 (or 302 or 303 for other quarters) → Scroll down and look at all lab sections and lecture sections availability simultaneously.

- Waitlists: If you desire to enroll in a lab that is currently full, there may be a waitlist available. However, if you add to the waitlist, you cannot actually be enrolled in another lab section at the same time, so you cannot retain your “second choice” lab. If you are on a waitlist, you must frequently check your pdx.edu email account. The student will receive a message that they have 24 hours to register or they will be dropped from the waitlist. Waitlists disappear on the first day of classes and if you are not added before then, you retain no priority to be added to a lab section because you were previously on the waitlist. People add and drop every day, so check frequently if you desire to get into a lab that is already full.

- The weekend before classes start, online registration and the wait list shuts down and students need to register in person after having a special registration form (add form) signed. Your previous waitlist position will not assist you in adding the lab.

- When labs begin, students who are enrolled must show up to the first lab within the first 15 minutes or may lose their spot if other students are seeking a spot in that lab. If no students show up to claim an empty spot, the student may come to lab during the second lab meeting and resume the course, but will not be contacted if their spot has been filled so may show up and find that they have lost their spot.

- Please do not switch from your registered section unless absolutely necessary, however if absolutely necessary:
  - You may show up to any lab section during the first lab of the quarter, full or not full, and ask the TA if you can join that section before class starts and sit in on the introduction to the lab. If spots are already available or become available, students seeking entry into that section will be added by the teaching assistant if sufficient spots are available for the number of students seeking a spot. If there are more students seeking a spot than spots that are available, all students will be entered into a random lottery for the available spots.
  - If you hope to switch to a lab section that occurs after your registered section, you must attend the registered section in full in case you do not get into your desired section. If you subsequently gain a spot in a different preferred section, please notify the original TA that you will no longer be enrolled in your initial lab.
  - If you desperately need to switch labs after the first labs have ended, please contact the Teaching Assistant for a desired section by email to see if they have spots available. Banweb may not accurately reflect the true number of students in a section.
  - If you switch labs or are added to a lab, the Teaching Assistant will sign a special registration form (these may or may not be available in lab, please print one out before you come). You must take that form to the registrar within 24 hours or you may lose your spot.

- If you are not currently enrolled in any lab section when classes begin, you may still attend and try to gain a spot as above. Enrollment in the course is only limited by lab availability. If you get into a lab, the lecturer will add you to the lecture section as well but only after you find a spot in a lab.
DRC Accommodations

Disability Resource Center: If you are a student with a documented disability and are registered with the Disability Resource Center, please file your paperwork by the first day of class. No accommodations for lecture or lab can be made without filing the proper paperwork. Note that you must file a separate form for the lab and lecture portions of the course. Note: All DRC arrangements are confidential. Please find a private time to discuss these with the lecture instructor or your laboratory TA, or make arrangements by email or phone, but the basic arrangements are:

Lecture Exams:
If you have a distraction reduction accommodation and require tests be taken in a quiet environment or if you require extra time, you will need to make appointments with the testing center (http://www.pdx.edu/shac/testing-services) to take the exams on the same day as the rest of the class at a time that overlaps with the lecture exam starting within 30 minutes (before or after) of the time that the rest of the class begins their exams. See the schedule here for exact exam days/times. Please contact your lecture instructor directly if you are unable to satisfy this timeframe. Please make these arrangements as soon as possible, the testing center has limited capacity and fills up quickly.

Laboratory Quizzes and Practicals:
For lab you will need to discuss your lab accommodation with the TA as soon as possible, please contact them immediately. If you are unable to discuss this privately during your first lab session, please contact them by email to discuss your requirements.

If you require distraction reduction or extended time, see below:

- Quiz accommodations are generally run before lab starts so if you have a class conflict immediately before lab you should consider switching lab sections.
- Practicals are generally run after the rest of the class finishes, but within the allotted lab period as we do not do any teaching after the practical.
- In almost all cases you will take the quiz or practical with a minimum number of other students to reduce distraction. In rare events this is as many as 3 total students, but in many cases it is just a single student in the room.
- You may be asked to switch lab sections (between the different rooms, not to a different time period) in order to accommodate everyone fully.
Textbook Information


- The textbook above is the only required resource for both lecture and lab of all three courses (BI301,302,303).
- “Connect” (http://connect.mheducation.com) is the online electronic platform associated with this textbook and includes an e-book version of the entire textbook along with a multitude of other tools and resources for learning.
- Having access to the e-book available with the purchase of Connect or having access to the physical textbook is the only requirement for the course.
- Connect can be purchased directly from the publisher McGraw-Hill for $125 (including ebook). See “Connect Information” below for purchasing.
- This access to connect only lasts for one year. Students should wait to purchase it until near the beginning of the course as this will allow you to still have access through the next full summer session of the A&P series in case you need to take or retake one of the courses, or for the subsequent academic year if you take it in the summer.
- With the purchase of Connect, you will have the option to purchase a physical text for an additional $40 ($165 total). This is a loose-leaf edition for use within a 3-ring binder. While these can be cumbersome to use if you load the entire textbook into a large binder, you can opt to simply use a smaller binder and only put in the chapters that we cover each quarter and then it becomes fairly manageable to carry with you, especially to lab where you might like to have this information on hand.
- You may also purchase a hardcover book and/or Connect access at the bookstore, this is more expensive. You are also free to purchase a used copy online, but if you want Connect access you should be sure of what you are purchasing.
- Connect will provide you with a number of online features for learning and reviewing material, however no points are awarded for using the system, it is simply an opportunity to review material in a different manner. However, we have put in a lot of work to make this a very useful resource, especially for lab. For example, this will include the material for reviewing the extensive lists of features, such as bones and muscles that you will be memorizing this quarter in lab, along with further anatomy and histology resources that will be used throughout the year. “Anatomy and Physiology Revealed (APR)” is also accessible within connect (see a preview at: http://www.mhhe.com/sem/apr3/) which includes an online virtual cadaver and we have customized the list of features within APR to match our laboratory requirements. Further, the textbook itself is very limited relative to histology (microscopic examination of tissues), but histology is emphasized in lab and Connect will provide further support for histological review.
- If you choose to purchase a new or used copy of the textbook online from another source, be sure that you understand whether that price includes Connect or does not. Any used copy is unlikely to include any access to Connect.
- We cannot recommend using an older version of the textbook or not purchasing Connect to save a little money. This is a full year course and this is a relatively small investment, especially if this course is important to your professional future (which it is if you have any clinical aspirations).
Connect Information (Registering or Initially Purchasing)

Note: Problems connecting or utilizing the resources? Call Connect Customer Support at 800-331-5094. Please do not contact the instructor regarding these problems.

1. Go to the Connect web address for the Laboratory Connect Course:
   Make sure you are logged out of Connect if you are a returning user. If you have difficulty accessing this link, try using a different browser or computer or clear the cache on the browser you are using.

2. After confirming the course (BI301, 302, 303 Laboratory 2016 & 2017), the section (BI301 Laboratory Fall 2016) and instructor (Thomas Hancock) information, which is displayed on the right side of the screen, click “Register Now”.

   Note: All students in Lab will register for this Laboratory Connect Course. See your lecture syllabus for an additional Connect section that applies to lecture (different for different instructors), but sign up for the laboratory course first.

3. If you are a returning user and already have Connect access for this Saladin 7th ed. Textbook, the course should be now added and accessible.

   If you are a new user, you’ll see three options:
   a. Enter your e-mail address and follow the instructions. YOU ARE REQUIRED to register using your pdx.edu email account.
   b. If you already received an access code with your new text OR if you purchased an access card from your bookstore, enter your code in the appropriate field and click “Submit”.
   c. If you don’t have a code yet, click “Buy Online” to purchase one with a credit card. You will later be given an option to purchase a physical text.
   d. Note: If you purchase the online textbook and later decide to drop the course you will not be able to receive a refund.
   e. Not ready to purchase yet? There may be a free courtesy option to preview the material in case you are not sure whether the class is appropriate for you. However, you will not be able to purchase the physical textbooks at the discounted price until you pay for access to Connect.

4. You can now access your Connect homepage by going to http://connect.mheducation.com/ and logging in. At your Connect homepage you can access your assignments, study center, grades, and other resources provided by your instructor. Start by clicking any of the assignment titles displayed on the list. These will be added as the course progresses, but you will immediately be able to access the ebook version of the textbook.

5. In order to purchase a loose-leaf edition of the textbook through McGraw-Hill Publishers, you will see an option appear on the main home screen after logging into the system, as shown in the bottom right of the screen below. This option will not appear if you are using a courtesy preview period.

   Note that we have negotiated a coupon code for your class. Please enter in the coupon code exactly as it appears here (All Caps and no spaces): PSU16

   Problems connecting or utilizing the resources?
   Call Connect Customer Support at 800-331-5094. Please do not contact the instructor regarding these problems.
Using Connect with Laboratory

For each laboratory there may be two types of assignments. These are found within the folder for each week (ex. Lab A).

1. Connect assignments: (ex. “Connect: BI301, Lab A”) that are specific to your Saladin textbook and utilize the same figures. Just click on these and begin answering questions that are specific to the lab material. While each assignment looks like it has points attached, these are optional and no points count toward your grade.


You can run through the APR tutorial titled “APR Review” on the main menu of the Laboratory Connect Course beforehand and all of this will be much easier.

You do not actually click on this link. Instead do the following:

- On the connect assignment, note the code (ex. Ck4f4, copy this so you can paste it later) and the module that you will be working in. (ex. Body Orientation).
- To activate these APR assignments: Go to the button on the right middle of the screen titled “Cadaver Dissection Tool, Launch Anatomy & Physiology Revealed”, that opens a new APR window.
- Click the green "my Course Content" button in the upper left of the screen.
- Select the "Add/Delete List" button, then the “Add List” button and enter the code (or paste it) contained in the initial Connect Screen (ex. “Ck4f4”).
- Now that “List” will appear under the My Course Content whenever you enter APR (only do the above once).
- Yes, that is a lot of steps, but you get used to it.
- To Review: Select that “List” (ex. 301 Lab A1-A3 Anat. Term.) under My Course Content (green button).
  - Select the proper module associated with that assignment (ex. Body Orientation). It will then show you a list of features to review. You may then click on those terms to review each one.
  - In this assignment (301 Lab A1-A3 Anat. Term.), only the “my Dissection” tab shows, but in others there may be multiple tabs activated such as “Histology” or “Animations”. Click on those tabs when applicable for further review.
  - Or you may prefer to simply select “Take My Quiz” if that is a better way for you to study and assimilate information.

Note that instructions for how to use Connect with lecture are found on the lecture syllabus.
# Academic Calendar

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Fall 2016</th>
<th>Winter 2017</th>
<th>Spring 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Schedule available online</td>
<td>Apr. 25</td>
<td>Oct. 24</td>
<td>Feb. 6</td>
</tr>
<tr>
<td>Pre-term priority registration begins</td>
<td>May 9</td>
<td>Nov. 7</td>
<td>Feb. 20</td>
</tr>
<tr>
<td>Classes begin</td>
<td>Sept. 26</td>
<td>Jan. 9</td>
<td>Apr. 3</td>
</tr>
<tr>
<td>PSU Payment Plan due dates</td>
<td>Oct. 6 Nov. 6 Dec. 6</td>
<td>Jan. 6 Feb. 6 Mar. 6</td>
<td>Apr. 6 May 6 June 6</td>
</tr>
<tr>
<td>Last day of 100% refund for dropped classes</td>
<td>Oct. 2</td>
<td>Jan. 15</td>
<td>Apr. 9</td>
</tr>
<tr>
<td>Last day to add classes or make section changes online</td>
<td>Oct. 2</td>
<td>Jan. 15</td>
<td>Apr. 9</td>
</tr>
<tr>
<td>70% refund period ends</td>
<td>Oct. 9</td>
<td>Jan. 22</td>
<td>Apr. 16</td>
</tr>
<tr>
<td>Last day to add classes (instructor approval required)</td>
<td>Oct. 7</td>
<td>Jan. 20</td>
<td>Apr. 14</td>
</tr>
<tr>
<td>Last day to drop classes without a W (dropped classes are not recorded on transcripts)</td>
<td>Oct. 9</td>
<td>Jan. 22</td>
<td>Apr. 16</td>
</tr>
<tr>
<td>Last day to waive student health insurance</td>
<td>Oct. 9</td>
<td>Jan. 22</td>
<td>Apr. 16</td>
</tr>
<tr>
<td>Last day to adjust enrollment for financial aid purposes</td>
<td>Oct. 9</td>
<td>Jan. 22</td>
<td>Apr. 16</td>
</tr>
<tr>
<td>40% refund/withdraw period ends (course is recorded on transcript as a W)</td>
<td>Oct. 16</td>
<td>Jan. 29</td>
<td>Apr. 23</td>
</tr>
<tr>
<td>20% refund/withdraw period ends (course is recorded on transcript as a W)</td>
<td>Oct. 23</td>
<td>Feb. 5</td>
<td>Apr. 30</td>
</tr>
<tr>
<td>Last day to withdraw from classes (course is recorded on transcript as a W)</td>
<td>Nov. 13</td>
<td>Feb. 26</td>
<td>May 21</td>
</tr>
<tr>
<td>Last day to change grading option</td>
<td>Nov. 13</td>
<td>Feb. 26</td>
<td>May 21</td>
</tr>
<tr>
<td>Last day to submit application for undergraduate degree or certificate</td>
<td>Nov. 17 (for winter graduation) Mar. 13 (for spring graduation)</td>
<td>June 5 (for summer graduation)</td>
<td></td>
</tr>
<tr>
<td>Classes end</td>
<td>Dec. 4</td>
<td>Mar. 19</td>
<td>June 11</td>
</tr>
<tr>
<td>Final Exams</td>
<td>Dec. 5-10</td>
<td>Mar. 20-25</td>
<td>June 12-17</td>
</tr>
<tr>
<td>Last day to clear academic deficiencies for graduation</td>
<td>Dec. 9</td>
<td>Mar. 24</td>
<td>June 16</td>
</tr>
<tr>
<td>Grades available online</td>
<td>Dec. 14</td>
<td>Mar. 29</td>
<td>June 21</td>
</tr>
<tr>
<td>Holidays [University Closed]</td>
<td>Nov. 11 Nov. 24 Nov. 25</td>
<td>Jan. 16</td>
<td>May 29</td>
</tr>
</tbody>
</table>
**Incompletes: Applies to both Lecture and Lab**

**Policy From PSU:**
Students do not have a right to receive/demand an Incomplete grade. The option of assigning an Incomplete grade is at the discretion of the instructor when the following criteria are met.

**Eligibility Criteria**

**Required satisfactory course completion/participation.** The quality of the work is satisfactory, but some essential work remains. In addition, the student must have successfully completed most of the course work at the time the student requests the Incomplete, with a minimum grade up to that point of a C- for undergraduate, or B- for a graduate level course.

**Reasonable justification for request.** Reasons for assigning the Incomplete must be acceptable by the instructor. A student does not have the right to demand an Incomplete. The circumstances should be unforeseen or be beyond the control of the student. The instructor is entitled to request appropriate medical or other documentation to validate the student’s request.

**Incomplete grade is not a substitute for a poor grade.** The Incomplete grade is not meant to create the opportunity for special or additional work for a student to raise a poor grade, or for the opportunity to take the course over by sitting in on the course in a later term without registering or paying for it.

**Written agreement.** A written or electronic agreement will be endorsed by both the instructor and student. The document will specify a) the remaining work to be completed, b) the highest grade which may be awarded upon submission of remaining items, and c) the date which the missing work is due. The latter may not exceed one year from the end of the term for enrollment for the given course. A template “Incomplete Contract” is available on Registrar’s website.

**Resolving the Incomplete.** Instructors may not encourage students to “sit in” an entire future course in order to resolve the Incomplete grade. If the student needs to retake the entire course, they should be given the grade presently earned, and must formally register for the future class they will be attending. If the missed portion of the course is no longer available, instructors may offer an alternative assignment. Grading weight of the alternative assignment should not exceed the original assignment. Students are fully responsible for monitoring all due dates.

**Other Rules:**

**GPA Calculation:** Incomplete grades are not included when calculating GPA.

**Deadline for Completion:** The deadline for completion of an Incomplete is one calendar year. The instructor may set a shorter deadline, which is binding. Any request for a longer deadline must be requested via petition to the Scholastic Standards Committee or Graduate Council.

**Failure to make up an Incomplete by the end of one year:**
Undergraduate Incomplete Grades: The mark of “I” will automatically change to a grade of “F” or “NP”, depending on the grading option chosen by the student upon registration. If the Incomplete converts to an F, the F grade is included in calculating GPA.

Graduate Incomplete Grades: The Incomplete will become part of the permanent record for a graduate course.

**Graduating Undergraduate Students:** Incompletes awarded in undergraduate courses taken in Fall 2006 or later will automatically change to a grade of “F” or “NP” before conferral of the degree. The faculty of record may submit a grade change no later than 30 days after the degree is awarded. Grades of “F” or “NP” will remain on the academic record after this period and cannot be removed.

**Contract for Assigning an Incomplete in Biology:**

How to deal with an Incomplete in A&P:
In any of the A&P Courses (BI301,302,303) we allow you to maximally miss one lecture exam and one practical for a valid documented medical event or emergency, subject to the instructor’s discretion. You will need to fill out an “Incomplete Grade Justification” contract (found at link above) with the instructor of your lecture (Drs. Hancock or DeGrauw) and complete the work within one year (in the summer session or the next time the course runs in the regular academic year). You do not need to register for the course again or pay any money, but you must contact the instructor several weeks before any exam or assignment you wish to retake so that you can get the appropriate syllabus with the appropriate times, dates, and locations to make up the exam or assignment. You may continue on in the series with an incomplete. An incomplete may affect financial aid or athletic eligibility so check with the registrar or athletic advisors for your specific circumstances.