

Spring 2-1-2017

# BIOH 481.80: Teaching Anatomy and Physiology II

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# BIOH481 (honors): Teaching Anatomy and Physiology II

## Syllabus Spring 2017

**Instructor: Laurie Minns, PhD**

- Office: BioResearch Building Rm 106
- Phone: 406-243-6013
- Office Hours: Mondays 10-10:50am and Wednesdays 2:10-2:55pm
- Email: Laurie.Minns@mso.umt.edu

**\*\* Pre-requisite: Grade of B- or higher in BIOH370, consent of instructor**

### Course Meeting Times:

- Fridays 12noon-12:50pm
- Mondays 12 noon-12:50pm: rotation check off
- Assigned lab (arrive 10 minutes early)
- Assigned open labs (stay the entire 2 hours or 2 blocks of 1 hour, TBD at the beginning of the semester)
- TA only open labs (optional for content mastery, see lab schedule)

### Course Structure

- 1) Lecture, discussion and preparation of laboratory materials for BIOH365.
- 2) Weekly mandatory meetings to discussing teaching strategies effective for undergraduate BIOH365 cadaver labs
- 3) Supervised teaching of laboratory activities in one BIOH365 laboratory per week
- 4) Supervised teaching during weekly open labs for BIOH365 students.

### Required materials:

Principles of Anatomy and Physiology 14<sup>th</sup> edition by Gerard J. Tortora, Bryan H. Derrickson - John Wiley & Sons (2014) – ISBN 978- 1-118-34500-9 plus the Wiley Plus online package (available at the University of Montana Bookstore).

Atlas of Anatomy by Anne M. Gilroy, Brian R. MacPherson, Lawrence M. Ross - Thieme (2008) –ISBN-978-1-60404-062-1 or the 2<sup>nd</sup> edition of the Gilroy atlas or the electronic edition (available from [www.thieme.com](http://www.thieme.com))

### Course Objectives:

Upon successful completion of this two-course sequence, you will have mastered the conceptual and practical information regarding the anatomy and physiology of the human organism by assisting in teaching the human anatomy and physiology labs (BIOH365). More specifically, upon the successful completion of this course you should be able to:

- 1) Demonstrate understanding of chemical and biological principles and knowledge that serve as the foundation for understanding human anatomy and physiology.
- 2) Understand and analyze cellular processes governing development, growth and normal function of the human body.
- 3) Understand the processes involved with maintaining homeostasis and anticipate what may occur when homeostatic balance mechanisms are lost.
- 4) Demonstrate practical knowledge of human gross and microscopic anatomy using human cadavers and prepared histological slides.
- 5) Identify structures in the body and analyze their relationship with other structures.
- 6) Describe development, regeneration and normal function of body systems

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- 7) Understand the cellular and physiological mechanisms that drive tissue formation and function.
- 8) Employ the scientific process for understanding principles of anatomy and physiology.
- 9) Analyze A&P observations and data and determine the potential physiological consequences.
- 10) Become familiar with current teaching practices and ways to address the various learning styles of students in the human anatomy and physiology laboratory.

### Topics covered (Learning Goals):

During this two-semester course, students enrolled in BIOH480 will gain mastery of human anatomy and physiology as it pertains to health professionals attributed to the increase in preparation of course materials and conveying this information to students enrolled in BIOH365.

The two-semester sequence is divided as follows:

BIOH 480	BIOH 481
<b>Body Plan &amp; Organization</b>	<b>Endocrine System</b>
<b>Homeostasis</b>	<b>Cardiovascular System</b>
<b>Chemistry &amp; Cell Biology Review</b>	<b>Lymphatic System &amp; Immunity</b>
<b>Histology</b>	<b>Respiratory System</b>
<b>Integumentary System</b>	<b>Digestive System</b>
<b>Skeletal System &amp; Articulations</b>	<b>Metabolism</b>
<b>Muscular System</b>	<b>Urinary System</b>
<b>Nervous System</b>	<b>Fluid/Electrolytes &amp; Acid/Base Balance</b>
<b>Special Senses</b>	<b>Reproductive System</b>

**Important Lab Meeting dates are below: topics may change**

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## Spring 2017 Rotation Breakdown

Lab 1: Endocrine System	Rotations	Lab Meeting Presentation Date	Week of student labs
Rotation 1:	Cadaver/Torso Model Endocrine organs	20-Jan	1/24-1/26
Rotation 2:	Histology 1: Thyroid, parathyroid, pancreas	20-Jan	1/24-1/26
Rotation 3:	Histology 2: Pituitary and adrenal glands	20-Jan	1/24-1/26
<b>Lab 2: Blood</b>			
Rotation 1:	Blood Typing exercises	27-Jan	1/31-2/1
Rotation 2:	Homeostatic imbalances of blood	27-Jan	1/31-2/1
Rotation 3:	Histology and Differential blood count	27-Jan	1/31-2/1
<b>Lab 3: Heart Anatomy</b>			
Rotation 1:	Cadaver heart	3-Feb	2/2-2/9
Rotation 2:	Pig heart dissection	3-Feb	2/2-2/9
Rotation 3:	Heart models	3-Feb	2/2-2/9
<b>Lab 4: Heart Physiology</b>			
Rotation 1:	Ascultation station, BP and pulse points	10-Feb	2/14-2/16
Rotation 2:	Cardiac Cycle explanation	10-Feb	2/14-2/16
Rotation 3:	Powerlab ECG/ECG	10-Feb	2/14-2/16
<b>Lab 5: Blood vessels of Head, Neck and UE</b>			
Rotation 1:	Male Cadaver	2/17/2017 (Feb 20 is a holiday)	2/21-2/23
Rotation 2:	Female Cadaver	2/17/2017 (Feb 20 is a holiday)	2/21-2/23
Rotation 3:	Models/Circle of Willis	2/17/2017 (Feb 20 is a holiday)	2/21-2/23
<b>Lab 6: Blood vessels of the thorax/abdomen, and lower extremity</b>			
Rotation 1:	male cadaver	24-Feb	2/28-3/2
Rotation 2:	female cadaver	24-Feb	2/28-3/2
Rotation 3:	Models	24-Feb	2/28-3/2
* Lab practical 3/7-3/9 Extra open labs the weekend Sat 3/3 and Sun 3/4			
<b>Lab 7: Lymphatics and immune system</b>			
Rotation 1:	Lymphatics model and cadavers	10-Mar	3/14-3/16
Rotation 2:	Histology (lymph node)	10-Mar	3/14-3/16
Rotation 3:	Histology (spleen and thymus)	10-Mar	3/14-3/16
Spring Break 3/20-3/24!!! No meetings this week.			
<b>Lab 8: Anatomy of the respiratory system</b>			
Rotation 1:	male and female cadavers	17-Mar	3/28-3/30
Rotation 2:	histology	17-Mar	3/28-3/30
Rotation 3:	models	17-Mar	3/28-3/30
<b>Lab 9: Physiology of the respiratory system</b>			
Rotation 1:	Spirometry Exercise- coordinate with Heather to get the spirometer	31-Mar	4/4-4/6
	Respiratory Interactive Case Study Review	31-Mar	4/4-4/6
<b>Lab 10: Digestive System</b>			
Rotation 1:	Cadavers: digestive organs/function	7-Apr	4/11-4/13
Rotation 2:	Alimentary Canal Histology and Models	7-Apr	4/11-4/13
Rotation 3:	Accessory Organs Histology and Models	7-Apr	4/11-4/13
<b>Lab 11: Urinary System</b>			
Rotation 1:	Kidney Models and cadavers	14-Apr	4/18-4/20
Rotation 2:	histology	14-Apr	4/18-4/20
Rotation 3:	urinalysis	14-Apr	4/18-4/20
<b>Lab 12: Reproductive System</b>			
Rotation 1:	Cadavers	21-Apr	4/25-4/27
Rotation 2:	Models	21-Apr	4/25-4/27
Rotation 3:	Histology	21-Apr	4/25-4/27

\*Lab Practical exam 5/2-5/4; extra open labs 4/29-4/30

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### MINIMUM requirements for BIOH481 Undergraduate Teaching Assistants

- 1) Present the content from prepared rotation lesson plans during the mandatory Friday 12pm-12:50pm meeting to fellow UGTAs and Instructors. The sign up sheet for these labs will be posted in the first course meeting or earlier.
- 2) Prepare and present two rotation lesson plans and BIOH370 student study sheets and to the fellow TAs and Lab instructors at the Friday 12 noon-12:50pm meeting according to the sign up sheet posted in the lab.
- 3) Assist in teaching one lab per week. Assignments for these labs are made by Dr. Minns. Missing a lab without notifying Dr. Minns and your lab instructor will result in the automatic drop of one letter grade. Missing more than one assigned lab without contacting your lab instructor will lead to course failure.
- 4) Assist during one open lab period per week (2 hours) and one extra open lab prior to laboratory practical exams.
- 5) Participate in the TA check-off meeting on Mondays 12pm-12:50. Be fully prepared for scheduled BIOH370 laboratories by being familiar with cadaver prosections, histology slides, laboratory equipment operation, and laboratory teaching rotations.
- 6) Assist in preparing and grading the laboratory quizzes and practical examinations through the online Moodle question forums.
- 7) Demonstrate professionalism in your behavior. UGTAs must consistently exhibit an understanding of the confidentiality of conversations regarding student performance and student grades.
- 8) Demonstrate a high degree of initiative and independence.
- 9) Include Dr. Minns in all email correspondence between yourself and students (you may use cc or bcc); if you do not know how to respond to student inquiries, please email Dr. Minns for advice.

### BEHAVIOR EXPECTATIONS

- 1) Above all, be professional and ethical in all your dealings with colleagues and the students.
- 2) At **NO** time are you to discuss the grades or performance of a student enrolled in BIOH365/370 with anyone other than the laboratory instructor, any UGTA teaching within the same laboratory section, or Dr. Minns.
- 3) Minimize the amount of body contact/touching between you and the students while instructing or supervising open laboratories.
- 4) Arrive at the laboratory (HS101) five or ten minutes early (unless you are constrained by you academic or work schedule).
- 5) Immediately address the needs of the laboratory instructor. For example what needs to be done so the quiz or practical examination can begin on time.
- 6) Proctor the quiz or practical examination. Proctoring requires vigilance and observation of student's activities and needs during examinations.
- 7) Put other personal or academic issues aside when it is time for you to interact with the students.
- 8) Do not bring food or drinks into the laboratory.
- 9) Be prepared
- 10) Review all information for the assigned lab.
- 11) Determine what specific objectives your laboratory instructor would like you to address
- 12) Design your teaching preparation and instruction around these objectives.
- 13) Prepare one question for your peers from the lab learning objectives and answer one question from your peers each week on Moodle by Monday at midnight of each week.
- 14) Review any tutorials provided for the assigned lab.
- 15) Review all information linked to the TA Moodle site.
- 16) Review completed "terms to know" for each scheduled lab.

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- 17) If you are unable to attend a lab meeting, contact the laboratory instructor at least one day prior to the scheduled lab to determine your teaching objective(s).
- 18) Be attentive as the laboratory instructor is providing answers to quiz questions so you can correctly grade the quizzes.
- 19) Assist with the supervision of **at least one open lab per week, and one 'extra' open lab during the pre-practical open lab week**. If your schedule prohibits you from meeting this obligation during the week, please correspond with Dr. Minns so that alternative arrangements can be made.
- 20) If your academic or work schedule precludes you from assisting with scheduled open laboratories, it is expected that you will arrange another time that does coincide with your schedule (which may include weekends).
- 21) A minimum of **two** UGTAs must be in attendance for any of these additional open laboratories (no matter the day or the time).
- 22) Any of these additional open lab sessions must be scheduled at least five days in advance so the day(s) and time(s) can be placed on the Moodle page.
- 23) Be a good team member.
- 24) If another UGTA requests help in reviewing a concept, do so without criticism.
- 25) If another UGTA becomes ill or has some other scheduled conflict, be willing to "cover" their teaching responsibility.
- 26) If such an event does occur, **IT IS THE RESPONSIBILITY OF THE UGTA, NOT** the laboratory instructor or Dr. Minns, to facilitate this "switch".
- 27) If you check out the key to HS 101, leave contact information for others who may want to gain access to the room. Return the key within three days of the date you have checked it out. **UNDER NO CIRCUMSTANCES** should this key ever be in the hands of someone other than a BIOH 370 UGTA, a BIOH370 laboratory instructor, an official course tutor, or Dr. Minns. The key should **ALWAYS** be returned to the drawer by Monday morning.
- 28) Participate **EQUALLY** in the lab or prep room cleanup responsibilities assigned to your dissection team.
- 29) Be willing to admit when you do not know and answer, or have provided incorrect information.
- 30) Clean up after yourself and your dissection team.

### Evaluation Methods

Students will be evaluated each week on their ability to effectively teach their assigned lesson plan to their peers, laboratory instructors and Dr. Minns. Students will not be allowed to teach the material in the BIOH370 laboratory rotation until they exhibit mastery of the rotation material.

- ❖ The following factors will be considered during the rotation presentation evaluation (worth 40% of the total grade):
  - ❖ Effective use of proper anatomical, physiological and medical terminology.
  - ❖ The rotation presentation must be accurate and completely follow the established lesson plan.
  - ❖ The student must effectively engage peers and instructors in their teaching.
  - ❖ The student must effectively address peer and instructor questions to show mastery of the material.
  - ❖ The student must be able to complete the rotation information within the allotted time period.
- ❖ Students will be evaluated by Laboratory Instructors as they teach the actual rotation in BIOH370 laboratories. The following factors will be evaluated by laboratory instructors (worth 20% of total grade):

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- ❖ Effective use of proper anatomical, physiological and medical terminology.
- ❖ The rotation presentation must be accurate and completely follow the established lesson plan.
- ❖ The student must effectively engage peers and instructors in their teaching.
- ❖ The student must effectively address peer and instructor questions to show mastery of the material.
- ❖ The student must be able to complete the rotation information within the allotted time period.
- ❖ If the student does not know the answer to a question posed by a BIOH370 student, they are expected to find the appropriate answer by consulting with course materials and laboratory instructors/Dr. Minns.
- ❖ Students are required to be present and actively engage students during open labs (worth 20% of total grade)
- ❖ Monitor and respond to lab quiz questions on the Moodle page (worth 20% of total grade).
  - ❖ Students will automatically fail the class if they:
    - ❖ Discuss student performance or grades of a student enrolled in BIOH370 with anyone other than the laboratory instructor, other UGTAs teaching within the same laboratory section, an official course tutor, or, Dr. Minns
    - ❖ Provides access to the UGTA Moodle site to anyone who is not a laboratory instructor, tutor, or a fellow UGTA
- ❖ A deduction of one letter grade will automatically occur as a result of:
  - ❖ One unexcused absence from a scheduled lab class or lab meeting.
  - ❖ Failure to submit your assigned lesson plan on time.
  - ❖ More than ONE incident in which you have not taken the initiative to contact the laboratory instructor at least one day prior to a scheduled lab to determine your teaching responsibilities.
  - ❖ More than ONE week during which you did not provide Dr. Minns one quiz or practical examination questions related to your teaching objectives PRIOR to the scheduled lab via email.

### Course Policies

Dr. Minns and the Laboratory Instructors follow academic policies as stated in the 2016-2017 Course catalogue. Students are responsible for being familiar with these policies.

<http://www.umt.edu/catalog/>

These policies include but are not limited to:

- Student Conduct ([http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php))
- Class attendance
- Credit/No Credit Grading
- No more than 18 CR credits may be counted toward graduation. Courses taken to satisfy General Education Requirements must be taken for traditional letter grade. Courses required for the student's major or minor must be taken for traditional letter grade, except at the discretion of the department concerned.
- A CR is given for work deserving credit (A through D-) and an NCR for work of failing quality (F). CR and NCR grades do not affect grade point averages. The grades of CR and NCR are not defined in terms of their relationship to traditional grades for graduate course work.
- Election of the credit/no credit option must be indicated at registration time or within the first 15 class days on CyberBear. After the fifteenth day, but prior to the end of the 30th day of instruction, an undergraduate student may change a credit/no credit enrollment to an enrollment under the A F grade system, or the reverse by means of a drop/add form.



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- The University cautions students that many graduate and professional schools and some employers do not recognize non traditional grades (i.e., those other than A through F) or may discriminate against students who use the credit/no credit option for many courses. Moreover, students are cautioned that some degree programs may have different requirements regarding CR/NCR credits, as stipulated in the catalog.
  - Audit
  - Incomplete Grading Policy
- Plagiarism

- Plagiarism is the representing of another's work as one's own. It is a particularly intolerable offense in the academic community and is strictly forbidden. Students who plagiarize may fail the course and may be remanded to Academic Court for possible suspension or expulsion. (See Student Conduct Code section of this catalog.)
- Students must always be very careful to acknowledge any kind of borrowing that is included in their work. This means not only borrowed wording but also ideas. Acknowledgment of whatever is not one's own original work is the proper and honest use of sources. Failure to acknowledge whatever is not one's own original work is plagiarism.

### ***Students with Disabilities:***

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommason Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

### ***Cell Phones and other electronic devices***

The use of cell phones and other electronic devices (including cameras, video recorders) is STRICTLY prohibited during all class times, including examinations.

### ***Disruptive behavior***

Students who are being disruptive in lecture by talking, texting or playing computer games will be asked to leave the classroom. Such behaviors impact the learning of other students in the classroom and will not be tolerated. Re-admittance to class is at the discretion of the instructor.

### ***Respect for the Cadavers:***

*These donated cadavers are gifts and must be treated with the dignity and respect they deserve. It is inappropriate to make disrespectful comments within and outside of the laboratory. You will observe professional conduct while in the lab and outside the lab. Naming of the cadavers, unnecessary horseplay, posing of the cadavers, etc WILL NOT BE TOLERATED. These cadavers are the result of gifts from fellow Montanans and their families who believed strongly in the benefit of health science education.*

<http://www.montana.edu/wwwami/bodydonate.html>

Rules for Cadaver Use in the Anatomy and Physiology Labs:

- 1) The cadavers used in this lab were obtained from the Montana Body Donation Program at Montana State University. Cadavers are donated to MSU according to state regulations. Persons donating their body receive no financial compensation; this is truly their ultimate gift. Hence it is imperative that proper respect be paid to the cadaver at all times.

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- 2) Only students enrolled BIOH 365, BIOH 112 and teaching staff are allowed into the cadaver lab at any time. No minor children or other family members are to be brought to the open lab times. If you see someone in the lab who you believe is unauthorized, notify laboratory personnel and/or ask him/her to leave the lab.
- 3) Body parts, tissue, etc must not be removed from the lab.
- 4) No cameras, camera phones or electronics with photo or video capability are allowed in the lab. Photography is prohibited.
- 5) Please be careful, the cadaver dissections will be used and material reviewed in other lab sections by other students. Keep the dissections moist and well covered when not working on that portion of the cadaver. Keep doors to lab closed and locked to keep security intact; students should police the lab.

### Laboratory Safety in the Anatomy and Physiology Labs

- 1) In case of an emergency, dial extension 4000 to report serious injuries. Phones are located throughout the Health Sciences Building. The Health Sciences main office is in room 104.
- 6) First Aid supplies are available in the supply room for HS 101 (the anatomy lab), HS 104 (the main office) and HS 403.
- 7) You are required to wear disposable gloves (nitrile or neoprene, latex gloves are not acceptable) at all times while working with the cadaver prosections. Cadavers are embalmed with a fluid containing propylene glycol, ethyl alcohol, phenol and formaldehyde. Physical contact of your skin and clothing should be avoided.
- 8) Wear old clothes and a long-sleeved lab coat while working with the cadaver. Lab coats should not be worn outside the lab.
- 9) No open-toes shoes or sandals are allowed in the lab. Wear shoes that cover your entire foot.
- 10) Contact lens wearers should be aware that chemical fumes can pass into gas permeable and soft lenses. These fumes irritate the cornea. Protective glasses (prescription or safety glasses) are recommended to protect against chemical splashes. Know the location of the eyewash station before you begin.
- 11) If you are pregnant, or believe you may be pregnant, you may NOT participate in the laboratories until you provide Dr. Minns with written documentation from your obstetrician that verifies an understanding of the chemicals to which you and your fetus are being exposed while in the presence of the cadavers.
- 12) No foods, drinks, gum or the application of makeup are allowed in the lab.
- 13) Respirators can be purchased for use in the lab, if desired.
- 14) Wash hands prior to leaving the lab.

SKILL	CHARACTERISTICS
1. Commitment to learning	Demonstrates a positive attitude (motivation) toward learning; identifies and locates appropriate resources; identifies need for further information; prioritizes information needs; welcomes and/or seeks new learning opportunities.
2. Interpersonal skills	Maintain a professional demeanor in all interactions; is non-judgmental about students' lifestyles; communicates with others in a respectful manner; assumes responsibility for own actions; respects cultural and personal differences of others; demonstrates acceptance of limited knowledge and experience; motivates others to achieve; approaches others in a professional

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	manner to discuss differences in opinion.
3. Communication skills	Uses correct grammar, accurate spelling and expression; writes legibly; listens actively; communicates with others in a confident manner; recognizes impact of non-verbal communication and modifies accordingly, maintains open and constructive communication.
4. Effective use of time and resources	Focuses on tasks at hand; recognizes own resource limitations; uses existing resources effectively; uses unscheduled time efficiently; completes assignments in a timely fashion; sets up own schedule; coordinates schedule with others; demonstrates flexibility; plans ahead; sets priorities and recognizes when needed; performs multiple tasks simultaneously.
5. Use of constructive feedback	Demonstrates active listening skills; actively seeks feedback and help; demonstrates a positive attitude toward feedback; critiques own performance; maintain two-way information; assesses own performance accurately; develops plan of action in response to feedback; reconciles differences with sensitivity.
6. Problem solving	Recognizes problems; states problems clearly; describes known solutions to problem; analyzes and subdivides large questions into components; accepts that there may be more than one answer to a problem.
7. Professionalism	Abides by U of M Student Conduct Code; projects professional image; demonstrates accountability for personal and professional decisions; maintains confidentiality in all interactions.
8. Responsibility	Demonstrates dependability; demonstrates punctuality; follows through on commitments; accepts responsibility for action and outcomes; p[rovides safe environment for students; recognizes own limits; offers and accepts help; completes projects without prompting.
9. Critical thinking	Raises relevant questions; considers all available information; articulates and formulates new ideas; seeks alternative ideas; exhibits openness to contradictory ideas.
10. Stress management	Maintains professional demeanor in all situations; accepts constructive feedback; recognizes own stressors or problems; maintains balance between professional and personal life; demonstrates effective affective responses in all situations.

The information in the above table will be considered if you should ask me to write a letter of recommendation for you.

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### Learning outcomes

<b>Dates</b>  <b>Tues-Thurs</b>	<b>Topic</b>	<b>Learning Outcomes</b>	<b>Assigned Readings</b>
<b>Lab 1</b>	The Endocrine System	HAPS Mod J.: Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the endocrine system and explain the functional roles of their respective hormones in communication, control, and integration.	Tortora pp. 615-660  Gilroy Atlas
<b>Lab 2</b>	Blood  Physiology demo: Blood typing, Formed element identification, homeostatic imbalances of the blood	HAPS Mod K: Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the cardiovascular system and explain their functional roles in transport and hemodynamics.	Tortora pp. 661-687  Gilroy Atlas
<b>Lab 3</b>	Heart Anatomy		Tortora pp. 688-728  Gilroy Atlas
<b>Lab 4</b>	Heart Physiology/Blood Pressure  Physiology demo- ECG's and interpreting rhythm strips Physiology of		Tortora Chap. 688-728  Gilroy Atlas

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	Circulation		
<b>Lab 5</b>	Blood Vessels Vessels of the Head, Neck and Upper Extremity		Tortora pp. 729-798 Gilroy Atlas -
<b>Lab 6</b>	Blood Vessels Vessels of the Abdomen and Lower Extremity		Tortora pp. 729-798 Gilroy Atlas
	****Lab Practical #1****	Covers labs 1-6	
<b>Lab 7</b>	Lymphatics and Immune System	HAPS Mod L: Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the lymphatic system and explain their functional roles in fluid dynamics and immunity.	Tortora pp. 799-839
<b>Lab 8</b>	Anatomy of the Respiratory System	HAPS Mod M: Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the respiratory system and explain their functional roles in breathing/ventilation and in the processes of external and internal respiration.	Tortora 840-885 Gilroy Atlas
	Spring Break! No Labs		
<b>Lab 9</b>	Physiology of Respiration Physiology demo: Spirometric testing		Tortora pp. 840-885

	and interpretation  !		
<b>Lab 10</b>	Digestive System	<p>HAPS Mod N: Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the digestive system and explain their functional roles in digestion, absorption, excretion and elimination.</p> <p>HAPS Mod O: Students who have completed this section of the course should be able to explain the functional relationship among cellular, tissue and organ level metabolism, the role nutrition plays in metabolism, and the mechanisms by which metabolic rate is regulated in the body.</p>	<p>Tortora 886-939</p> <p>Gilroy Atlas</p>
<b>Lab 11</b>	<p>Urinary System</p> <p>Physiology demo: Urinalysis testing and interpretation</p>	<p>HAPS Mod P: Students who have completed this section of the course should be able to identify and describe the major gross and microscopic anatomical components of the urinary system and explain their functional roles.</p> <p>HAPS Mod Q: Students who have completed this section of the course should be able to identify and describe the physiology of the homeostatic mechanisms that control fluid/electrolyte and acid/base balance.</p>	<p>Tortora 979-1022</p>
<b>Lab 12</b>	Reproductive System – Male	HAPS Mod R: Students who have completed this section of the course should be able to identify and	<p>Tortora 1041-1088</p>

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	and Female	describe the major gross and microscopic anatomical components of the reproductive system and explain their functional roles in reproduction and inheritance.	Gilroy
	****Lab Practical #2****	On labs 7-12	