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BIOH 481.80: Teaching Anatomy and Physiology II - Honors

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BIOH481 (honors): Teaching Anatomy and Physiology II Syllabus Spring 2022

Instructor: **Colin Henderson**

- Office: MC 410
- Phone:
- Office Hours: by appointment
- Email: colin.henderson@umontana.edu

**** Pre-requisite: Grade of B- or higher in BIOH480, consent of instructor**

Course Meeting Times:

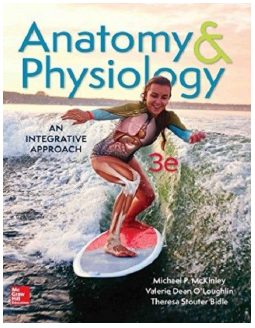
- Tuesdays 5pm-6pm: rotation check off
- Assigned lab

Course Structure:

1) Lecture, discussion and preparation of laboratory materials for BIOH371.
2) Weekly mandatory meetings to discussing teaching strategies effective for undergraduate BIOH371 cadaver labs
3) Supervised teaching of laboratory activities in one BIOH371 laboratory per week
4) Supervised teaching during weekly open labs for BIOH371 students.

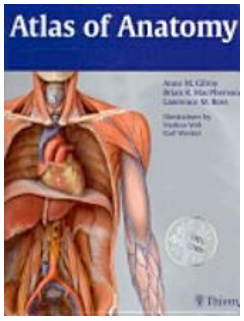
Required materials:

Required Course Materials: (you access to this text should still be good from when you took BIOH 366, confirm this by logging into your connect account)
Anatomy and Physiology, an Integrative Approach, 3ed. McKinley, O'Loughlin, Bidle. McGraw Hill, 2018 McGraw Hill Connect online supplement. (the 2nd edition is acceptable as well).



Optional Course Materials:

Atlas of Anatomy by Anne M. Gilroy, Brian R. MacPherson, Lawrence M. Ross - Thieme (2008) –ISBN-978-1-60404-062-1 or the 2nd or 3rd edition of the Gilroy atlas or the electronic edition (available from 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 (BIOH366). 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
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 BIOH366.

The two-semester sequence is divided as follows:

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

MINIMUM requirements for BIOH481 Peer Leaders:

1) Complete and post 2 videos on rotation material by specified deadlines (deadlines will be posted to Moodle).

2) Assist in teaching one lab per week. Missing a lab without notifying 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.
3) Participate in the TA check-off meeting on Mondays 5-6pm.
4) Write 1 question per week on the lab material.
5) Be fully prepared for scheduled BIOH371 laboratories by being familiar with cadaver prosections, histology slides, laboratory equipment operation, and laboratory teaching rotations.
6) Post one lab quiz question per week in the linked Google doc.
7) Post one check-off questions per week in the Moodle forum.
8) Demonstrate professionalism in your behavior. Peer leaders must consistently exhibit an understanding of the confidentiality of conversations regarding student performance and student grades.
9) Demonstrate a high degree of initiative and independence.
10) Include your instructor 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 your instructor for advice.

Behavior Expectations:

Above all, be professional and ethical in all your dealings with colleagues and the students.

11) At **NO** time are you to discuss the grades or performance of a student enrolled in BIOH366/371 with anyone other than the laboratory instructor, any peer leader teaching within the same laboratory section.
12) Minimize the amount of body contact/touching between you and the students while instructing or supervising open laboratories.
13) Arrive at the laboratory (HS101) five or ten minutes early (unless you are constrained by you academic or work schedule).
14) Immediately address the needs of the laboratory instructor (i.e. what needs to be done so the quiz or practical examination can begin on time.)
15) Proctor the quiz or practical examination. Proctoring requires vigilance and observation of student's activities and needs during examinations.
16) Put other personal or academic issues aside when it is time for you to interact with the students.
17) Do not bring food or drinks into the laboratory.
18) Be prepared
19) Review all information for the assigned lab.
20) Determine what specific objectives your laboratory instructor would like you to address
21) Design your teaching preparation and instruction around these objectives.
22) Review any tutorials provided for the assigned lab.
23) Review all information linked to the TA Moodle site.
24) Be a good team member.
25) If another peer leader requests help in reviewing a concept, do so without criticism.
26) If another peer leader becomes ill or has some other scheduled conflict, be willing to "cover" their teaching responsibility.
27) If such an event does occur, **IT IS THE RESPONSIBILITY OF THE PEER LEADER, NOT** the laboratory instructor, to facilitate this "switch".
28) 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 366 Peer Leader a BIOH366 laboratory instructor, an official course tutor. The key should **ALWAYS** be returned to the drawer by Monday morning.

29) Participate **EQUALLY** in the lab or prep room cleanup responsibilities assigned to your dissection team.
30) Be willing to admit when you do not know and answer, or have provided incorrect information.
31) Clean up after yourself and others after every lab.
32) Monitor the laboratory during all class visits to insure that all procedures are being followed appropriately.
33) Enforce HIPAA regulations.
34) Notify instructor immediately if you observe suspicious behavior.

Evaluation Methods

Students will be evaluated each week on their ability to effectively teach their assigned lesson plan to their peers or laboratory instructors. Students will not be allowed to teach the material in the BIOH371 laboratory rotation until they exhibit mastery of the rotation material.

- The following factors will be considered during the rotation presentation evaluation (worth 50% 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 effective 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 BIOH371 laboratories. The following factors will be evaluated by laboratory instructors (worth 20% of 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 effective 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 BIOH371 student, they are expected to find the appropriate answer by consulting with course materials and laboratory instructors.
- Complete rotation videos and post required questions to Moodle (worth 30% of total grade).
  - Students will automatically fail the class if they:
  - Discuss student performance or grades of a student enrolled in BIOH371 with anyone other the laboratory instructor, other peer leader's teaching within the same laboratory section or an official course tutor.
  - Provides access to the peer leader Moodle site to anyone who is not a laboratory instructor, tutor, or a fellow peer leader.
- A deduction of one letter grade will <u>automatically</u> occur as a result of:
  - One <u>unexcused</u> 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 <u>at least one day prior to a scheduled lab</u> to determine your teaching responsibilities.

- ❖ More than ONE week during which you did not provide your instructor with an appropriate question for a quiz or the check off.

Course Policies

Instructor and the Laboratory Instructors follow academic policies as stated in the 2017-2018 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)
- 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.
- 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. If you are a student with a disability and wish to request reasonable accommodations for this course, contact me privately to discuss the specific modifications. Please be advised, I may request that you provide a verification letter from the Office for Disability Equity (ODE). If you have not yet registered with the Office for Disability Equity (ODE), located in Lommasson Center 154, please

do so in order to coordinate your reasonable modifications. For more information, visit the Office for Disability Equity (ODE) website at ode@umontana.edu or call (406) 243-2243.

Students with disabilities who would like reasonable accommodations must provide documentation to the lab instructor the first week of class so that appropriate arrangements can be made. In the event that students decide after the semester begins that they would like to disclose their disability and request accommodations, students must provide documentation at least 10 days prior to the upcoming assessment so that instructors may prepare appropriately. It is the responsibility of students to make sure they understand the types of modifications available to them in both the lecture and laboratory portions of the course prior to assessments.

Cultural Leave Policy

UM has a Cultural and Ceremonial Leave Policy: "Cultural or ceremonial leave allows excused absences for cultural, religious, and ceremonial purposes to meet the student's customs and traditions or to participate in related activities. To receive an authorized absence for a cultural, religious or ceremonial event the student or their advisor (proxy) must submit a formal written request to the instructor. This must include a brief description (with inclusive dates) of the cultural event or ceremony and the importance of the student's attendance or participation. Authorization for the absence is subject to approval by the instructor. Appeals may be made to the Chair, Dean or Provost. The excused absence or leave may not exceed five academic calendar days (not including weekends or holidays). Students remain responsible for completion or make-up of assignments as defined in the syllabus, at the discretion of the instructor."

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.

Cadaver Care:

Students are expected to keep the cadaver's moist through the use of wetting solution. Wetting solution must be made and used regularly. There will be a sign up sheet in the lab where students record their use of re-stocking of wetting solution.

Access to the Laboratory Outside of Regularly Scheduled Class Hours

Students are expected to complete dissections when the labs are not in use for other undergraduate teaching. There is a calendar on the course Moodle page so that students/lab instructors use in order to schedule activities in the lab. Dissectors must sign up in advance and check out the designated lab key. Groups of two or more dissectors must be in the lab during dissection for safety reasons. Please locate the safety features in the lab and make sure the lab door is closed and locked during dissections.

COVID-19 Safety Protocols

1) Review the University of Montana policies and suggestions surrounding Covid-19. They can be found at the following link: https://www.umt.edu/coronavirus/coronavirus_faqs.php
2) You must wear a cotton face covering upon entering the lab (preferably one that has double-layered fabric).
3) You are strongly discouraged from touching their face or mask while in the lab. If you do, you must immediately wash your hands.
4) You must wash their hands before exiting the lab.
5) Maintain a 6-ft distance between yourself and other students at all times when in lab.
6) If you are experiencing any symptoms of Covid-19, contact your lab instructor and *stay home.* You will not be penalized for missing activities due to illness.
7) Keep in mind that your behavior and social patterns outside of class can make you more likely to come in contact with Covid-19. Please be conscientious of your social interactions and practice social distancing and good hygiene outside of the classroom.

Laboratory Specimen and Cadaver Information and Policies:

Much of your education in anatomy will result from a selfless donation of thoughtful individuals who voluntarily chose to donate their body to the Montana Body Donation Program that supports WWAMI education programs. *WWAMI (Washington, Wyoming, Alaska, Montana and Idaho) is a cooperative regional medical education program of the University of Washington School of Medicine that provides places for twenty Montana students per year in its entering medical student class. These twenty students take their first year of medical school at Montana State University and complete their studies at the University of Washington in Seattle and at community clinical training sites throughout the Northwest.*

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/wwwwami/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.
2) Only students enrolled BIOH 371, BIOH 113 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.

6) The Health Insurance Portability and Accountability Act of 1996 is in effect with regard to the cadavers. Any breach of privacy will be taken very seriously. Any violation of HIPAA in the cadaver lab will result in immediate removal from the course, a final course grade of F and the case will be referred to the Dean of Students for disciplinary action according to the student conduct code. Federal charges may also be brought against individuals who violate HIPAA. Students are responsible for knowing these regulations and abiding by them inside and outside the classroom. https://www.hhs.gov/hipaa/index.html
7) **Students are required to constantly monitor and insure that proper procedures are maintained in the laboratory and report any suspicious activity to instructor immediately.**

Note: Special permission was granted by the Montana Body Donation Program to make teaching modules from the cadavers by designated teaching staff. **Absolutely no students may take pictures or videos in the lab.** Students are also prohibited from showing or distributing any images of the cadavers on the teaching modules to any people except the lab instructors, lab peer leaders, and students enrolled in BIOH371 during Spring 2021.

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.
2) First Aid supplies are available in the supply room for HS 101 (the anatomy lab), HS 104 (the main office) and HS 403.
3) 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.
4) Wear old clothes and a long-sleeved lab coat while working with the cadaver. Lab coats should not be worn outside the lab.
5) No open-toes shoes or sandals are allowed in the lab. Wear shoes that cover your entire foot.
6) 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.
7) If you are pregnant, or believe you may be pregnant, you may NOT participate in the laboratories until you provide the instructor 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.
8) No foods, drinks, gum or the application of makeup are allowed in the lab.
9) Respirators can be purchased for use in the lab, if desired.
10) 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 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[provides 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 ides; 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.

Learning outcomes

	Topic	Learning Outcomes
Lab 1	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.
Lab 2	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.
Lab 3	Heart Anatomy	
Lab 4	Heart Physiology/Blood Pressure Physiology demo: ECG's, interpreting rhythm strips, physiology of circulation	
Lab 5	Blood Vessels of the Head, Neck and Upper Extremity	
Lab Practical 1		Covers labs 1 – 5
Lab 6	Lymphatics and the Immune System	HAPS Mod L: Students who have completed this section of the course should be able to identify and

2/22 – 2/26		describe the major gross and microscopic anatomical components of the lymphatic system and explain their functional roles in fluid dynamics and immunity
Lab 7*	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.
Lab 8*	Physiology of the Respiratory System	
	Spring Break	No labs!
Lab 9*	Digestive System	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. 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.
Lab 10	Blood Vessels of the Abdomen and Lower Extremity	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.
Lab 11	Urinary System Physiology demo: Urinalysis testing and interpretation	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. 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.
Lab 12	Reproductive System – Male and Female	HAPS Mod R: 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 reproductive system and explain their functional roles in reproduction and inheritance.
Lab Practical 2		Covers lab 6 - 12