

BIOH456 Syllabus Fall 2017

Cadaver Dissection Course

Course Information:

Instructor: Laurie Minns, PhD
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General Course Information:

This course is a practicum that provides the participant the ability to expand their anatomical knowledge base, professional growth, and public speaking skills. The participant will have the unique opportunity to dissect, within a small group, a region of a cadaver and present visible structures to their peers. The cadavers prepared by these students are used for teaching in DBS A&P offerings. Systems presented in autumn semester include integumentary, musculoskeletal and nervous systems.

This course predominately serves students majoring in biology, pre-medical, pre-nursing, pre-physical therapy, other pre-health care professions and health and human performance.

The two-semester sequence is divided as follows:

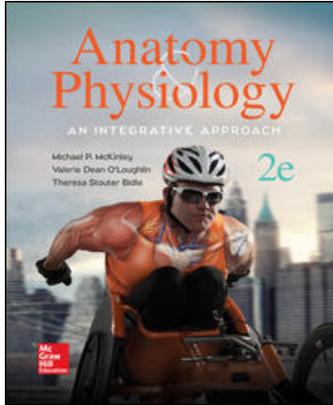
Fall Semester	Spring Semester
Body Plan & Organization	Endocrine System
Homeostasis	Cardiovascular System
Cell Biology Review/Metabolism	Lymphatic System & Immunity
Histology	Respiratory System
Integumentary System	Digestive System
Skeletal System & Articulations	Metabolism
Muscular System	Urinary System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

Required Prerequisites:

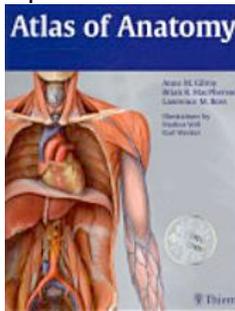
"A" or "B" in BIOH 365 and 370 or equivalent with cadaver experience. Consent of instructor.

Required Co-requisite: BIOH480 or BIOH461.

Anatomy and Physiology, an Integrative Approach, 2ed. McKinley, O'Loughlin, Bidle. McGraw Hill, 2016. ISBN 978-0-07-802428-3. McGraw Hill Connect online supplement.



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)

Dissector for Netter's Atlas Vol 1&2. ISBN 10: [0914168207](https://www.isbn-international.org/product/0914168207) / ISBN 13: [9780914168201](https://www.isbn-international.org/product/9780914168201)

Computers and Course Website Information

Students are expected to be familiar with computers and the Internet. Students are responsible for their own software and computer equipment maintenance and setup as recommended by the University of Montana.

<http://umonline.umt.edu/student-support.php>

Class-Specific Computer Requirements:

- Students must download and review posted course materials and other assignments prior to laboratory sessions. Students are expected to have a 'back up plan' if personal computers become compromised.
- The University of Montana maintains several computer labs on campus: <http://www.umt.edu/it/support/computerlabs/default.php>
- Students are expected to download copies of course information from the Moodle website and to check email for class announcements.
- **For technical support for using Moodle, please contact UM IT support:**

<http://www.umt.edu/it/support/default.php>

Course Goals:

Upon successful completion of this two-course sequence, you will have practical knowledge of dissection techniques, a better understanding of human anatomical structures and practiced the ability to convey structure function relationships to students of various academic levels.

Course Objectives:

- 1) Gain an appreciation for the complementarity of anatomical form with physiological function.
 - 2) Understand how the body systems work to maintain homeostasis.
 - 3) Use critical thinking skills to predict the consequences of homeostatic imbalances on human form and function.
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Course outcomes are based on the Human Anatomy and Physiology (HAPS)**Learning Objectives:**

- 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) Appropriately plan the dissection approach using a multitude of resources.
- 11) Master blunt and sharp dissection techniques on a preserved cadaver.
- 12) Expose and identify key structures of human anatomy.
- 13) Work as a team to reach important course milestones.

Course Information:

Teaching methods: Practicum. Students will plan dissections, perform sharp and blunt dissection while preserving key anatomical structures, and properly care for the cadavers to ensure their use as a teaching tool for other human anatomy and physiology courses.

Student Responsibilities:

- 1) Students are expected to complete the required reading and pre-laboratory assignments prior to class meeting times.
- 2) Students are expected to log on to the course Moodle site regularly to download course materials and read updated course announcements.
- 3) Students are expected to monitor their email and online platforms for important course announcements.

- 4) Regular attendance in lectures and laboratory is strongly recommended for successful completion of the course.
- 5) If absence from lecture or laboratory is necessary due to illness, it is your responsibility to obtain notes from another student.
- 6) Students are expected to be respectful to each other, the cadavers and teaching staff and Dr. Minns. Students who fail to do so will be disciplined as described in the student conduct code.

Course Policies

Dr. Minns and the Laboratory Instructors follow academic policies as stated in the 2017-2018 UM Catalog. 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
- Registrar deadlines
- Incomplete Grading Policy
- Audit: not permitted in this course

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.

Students with disabilities who would like reasonable accommodations must provide documentation to both Dr. Minns and 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.

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.

Evaluation Methods:

Your course grade will be determined by your performance in the lecture as well as the lab, according to the following evaluation methods:

Grading System:

Graded Activity	% of Final grade
Dissection Approach plan(s)	20
Cadaver Care	20
Peer Reviews	20
Active Participation in designated group meetings/dissection logs	20
Dissection Presentation	20
Total	100%

Final Grades will be based upon a total of 100 points.

Grades will be calculated based upon the following system; grades will be rounded. (i.e. if a student earns 83.44%, their grade will round to 83% or a B-; if a student earns 83.45% their grade will be rounded to 84% or a B):	
Grade	Percent of Total Points
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	59% and Below

Dissection Approach:

Students are expected to use a variety of resources, including the McKinley A&P text, the Gilroy atlas and the Netter’s Dissector and group discussion to prepare the approach for dissection. Groups are expected to discuss dissection boundaries with other nearby groups and consider them in the dissection approach. For example, the latissimus dorsi (origin dorsal group, insertion UE group, determine the dissection boundary for each group), pectorals major (origin ventral cavities, insertion UE, where is the dissection boundary, or will ventral group follow entire muscle), what is the dissection boundary for anterior and dorsal neck dissection, etc. These boundaries need to be agreed to in advance and incorporated in the dissection approach plan.

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.

Peer Reviews

Approximately the 4th week of the semester and at the end of the semester, students will submit confidential peer reviews of their group members. This will allow Dr. Minns and the lab instructors to record and monitor the effectiveness of group work. Peer review will be based on:

- 1) Attendance and participation during group meeting times
- 2) On time posting and completeness of dissection logs on moodle
- 3) On time and accurate dissection of structures
- 4) Pro-active communication with team members

Dissection Presentation:

Dates for dissections are included in the important dates section located at the end of this syllabus. Students are expected to have fully completed prosection preparation (this includes any 'clean up' of structures required by your group leader. During the dissection presentation, all structures need to be accurately identified and communicated in writing and in person to your group leader, group members and the teaching assistant responsible to preparing that week's lesson plan.

Students are expected to communicate all irregular findings to group leaders and lesson plan writers in written form. "Tricky" structures, such as the brachial plexus must be drawn out. Communicate with your group leader to determine which (if any) structures must be drawn out. All structure logs and drawings are due on the Wednesday Cadaver Dissection Presentation meeting.

Dissection Groups:

- Lower Extremity (Team Leader: Kari Zins)
 - Knee Lab (due 9/27)
 - Muscles of LE: anterior, posterior and gluteal region (due 10/6)
 - Clean up vessels of the lower extremity (ongoing)
- Upper Extremity (Team Leaders Danielle Mechfield and Ciara Gorman)
 - Muscles of UE (due 10/18; Danielle)
 - Brachial Plexus (11/8; Ciara)
 - Clean up vessels of the upper extremity (ongoing)
- Ventral group (Team Leader: Danielle Mechfield)
 - Muscles of the anterior thorax (due 10/18)
 - Muscles of the face (limited) and anterior neck (due 10/25)
 - Clean up vessels (ongoing)
- Dorsal group (Team Leader: Ciara Gorman)
 - Muscles of the superficial posterior (due 10/18)
 - Muscles of the posterior neck and deep back (due 10/25)
 - Cadaver brains (due 11/1)
 - spinal cord (due 11/8)
 - Clean up vessels (ongoing)

Additional Teaching Staff

Dissection Leaders:

- Danielle Mechfield: danielle.mechfield@umconnect.umt.edu
- Kari Zins: Kari.Zins@umconnect.umt.edu
- Ciara Gorman: ciara.gorman@mso.umt.edu

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, that students/lab instructors and Dr. Minns 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.

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 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.
- 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 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.
- 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.

Important Dates and Assigned Readings (this may be amended by Dr. Minns during the Semester)

Meeting Dates	Topics
9/6/2017	Introduction to Cadaver Care Dissection technique Knee dissection Plan due
9/13/2017	Dissection plans due for: LE muscles, UE muscles, Dorsal group, ventral group
9/20/2017	Dissection update/debrief Peer Review
9/27/2017	Knee Dissections due
10/4/2017	Muscles of the Lower extremity due
10/18/2017	Muscles of the Upper extremity due Muscles of the anterior thorax due Muscles of the superficial posterior thorax due
10/25/2017	Muscles of the face and neck due Deep muscles of the back due
11/1/2017	Laminectomy and craniotomy due (arrange with Ciara)
11/8/2017	Spinal Cord dissections/clean up due Brachial Plexus due
11/15/2017	Clean up vessels for Spring Semester
12/6/2017	Last day of class activities/Peer Review

Laboratory Specific Dates and Learning Outcomes

Topic	Learning Outcomes
Lab Orientation – Protocols and Procedures Introduction to Anatomical Terms, Gross and Surface Anatomy Cellular anatomy and physiology	<u>HAPS Modules A,B, C:</u> Describe the scope of studies in anatomy and physiology and be able to use and understand descriptive anatomical and directional terminology. Identify cellular structures and explain their respective functions.

<p>Histology – Tissue Form and Function The Integumentary System and Membranes</p>	<p><u>HAPS Module D:</u> Describe the basic tissues of the body, their location and explain their function. <u>HAPS Module E:</u> Identify and describe the major gross and microscopic anatomical component of the integumentary system and describe the functions of this system.</p>
<p>Bone – Histology Classification and types of osseous tissue The Axial Skeleton and its landmarks Fetal Skeletons</p>	<p><u>HAPS Modules E, F</u> Identify and describe the major gross and microscopic anatomical components of the skeletal system and explain their functional roles in osteogenesis, repair and body movement.</p>
<p>Appendicular Skeleton and its landmarks</p>	<p><u>HAPS Mod G, H</u> Identify and describe the major gross and microscopic anatomical components of the muscular system and explain their functional roles in body movement, maintenance of posture and heat production.</p>
<p>Articulations and Movement</p>	<p>Identify and describe the major gross and microscopic anatomical components of the nervous system and explain their functional roles in communication, control and integration.</p>
<p>Muscles 1 Histology and Microanatomy Identification (ID) and Origin, Insertion, and Action (OIA) and innervation of the muscles of gluteal compartment and lower extremity</p>	<p><u>HAPS Mod G, H</u> Identify and describe the major gross and microscopic anatomical components of the muscular system and explain their functional roles in body movement, maintenance of posture and heat production. Identify and describe the major gross and microscopic anatomical components of the nervous system and explain their functional roles in communication, control and integration.</p>
<p>Muscles 2 ID and OIA and innervation of the muscles the upper limb, anterior thorax and extrinsic back muscles</p>	<p><u>HAPS Mod G, H</u> Identify and describe the major gross and microscopic anatomical components of the muscular system and explain their functional roles in body movement, maintenance of posture and heat production. Identify and describe the major gross and microscopic anatomical components of the nervous system and explain their functional roles in communication, control and integration.</p>
<p>Muscles 3 ID, OIA and innervation of the muscles of the head, neck, face and intrinsic muscles of the back</p>	

<p>Nervous Tissue Histology Brain Anatomy and Physiology Cranial Nerves – Identification and function</p>	
<p>Spinal Cord: ANS organization and PNS branching, Brachial Plexus</p>	<p><u>HAPS Mod G, H</u> Identify and describe the major gross and microscopic anatomical components of the muscular system and explain their functional roles in body movement, maintenance of posture and heat production. Identify and describe the major gross and microscopic anatomical components of the nervous system and explain their functional roles in communication, control and integration.</p>
<p>Lab 11: Special Senses/</p>	<p><u>HAPS Module I</u> Identify and describe the major gross and microscopic anatomical components of the eye and ear and explain their function roles in vision, hearing and equilibrium.</p>

Fall 2017 BIOH365 Rotation Schedule and sign ups

Lab topic	Rotations	Cadaver dissection due	Lab Meeting Presentation Date	Rotation Checkoff Date	UGTA	BIOH365 Lab Meeting I
Surface Anatomy, Cellular anatomy and Physiology	Torso Model/Cadaver: quadrants, regions, membranes and organs in each; planes TA: Anatomical Regions and planes; movements/pin the regions on the skeleton Cell: Parts of a cell and their respective functions					
Rotation 1:			30-Aug	9/1/2017 (7am)		9/5-9/7
Rotation 2:			30-Aug	9/1/2017 (7am)		9/5-9/7
Rotation 3:			30-Aug	9/1/2017 (7am)		9/5-9/7
Lab 2: Tissues and the Integumentary System						
Rotation 1:	Tissue Histology/Dichotomous Key		8-Sep	11-Sep		9/12-9/14
Rotation 2:	Integumentary System Histology		8-Sep	11-Sep		9/12-9/14
Rotation 3:	Burns/Accessory structures of skin		8-Sep	11-Sep		9/12-9/14
Lab 3: Bone Histology and Axial Skeleton						
Rotation 1:	Bone Model and Bone Histology		15-Sep	18-Sep		9/19-9/21
Rotation 2:	Vertebrae ID, Rib articulations, Sacrum, sternum		15-Sep	18-Sep		9/19-9/21
Rotation 3:	Skulls (in-tact, exploded and fetal)-		15-Sep	18-Sep		9/19-9/21
Lab 4: Appendicular Skeleton						
Rotation 1:	Upper extremity Bone boxes		22-Sep	25-Sep		9/26-9/27
Rotation 2:	Lower Extremity Bone boxes/ Pelvis ID		22-Sep	25-Sep		9/26-9/27
Rotation 3:	Skeleton, with an emphasis on siding using palpable landmarks		22-Sep	25-Sep		9/26-9/27
Lab 5: Articulations and Movement						
Rotation 1:	cadavers and knee model -	27-Sep	29-Sep	3-Oct		10/4-10/6
Rotation 2:	Hip model and skeleton (shoulder vs hip)	27-Sep	29-Sep	3-Oct		10/4-10/6
Rotation 3:	TMJ and Gomphoses		29-Sep	3-Oct		10/4-10/6
Lab 6: Muscles of the Lower Extremity						
Rotation 1:	male cadaver	4-Oct	6-Oct	9-Oct		10/10-10/12
Rotation 2:	female cadaver	4-Oct	6-Oct	9-Oct		10/10-10/12
Rotation 3:	Lower Extremity Models/skeleton attachment sites		6-Oct	9-Oct		10/10-10/12
Extra open labs	10/14-10/15					
lab practical 1: on labs 1-6 (Oct. 17-19)	Arrive early to help your instructor			Sign up in the lab		
Lab 7: Muscles of Upper extremity, anterior thorax and superficial posterior thorax						
Rotation 1:	male cadaver	18-Oct	20-Oct	23-Oct		10/24-10/26
Rotation 2:	female cadaver	18-Oct	20-Oct	23-Oct		10/24-10/26
Rotation 3:	UE models/skeleton/attachment sites		20-Oct	23-Oct		10/24-10/26
Lab 8: Muscles of the face, neck and deep back						
Rotation 1:	male cadaver	25-Oct	27-Oct	30-Oct		10/31-11/2
Rotation 2:	female cadaver	25-Oct	27-Oct	30-Oct		10/31-11/2
Rotation 3:	Models		27-Oct	30-Oct		10/31-11/2
Lab 9: Nervous System: Brain (CSF model with the lab lecture; histology during lab lecture)						
Rotation 1:	Sheep Brains and correlation to human basic brain model	1-Nov	3-Nov	6-Nov		11/7-11/9
Rotation 2:	Models		3-Nov	6-Nov		11/7-11/9
Rotation 3:	cranial nerves and cadaver brains, dura mater	1-Nov	3-Nov	6-Nov		11/7-11/9
Lab 10: Spinal Cord, spinal nerves and the PNS and ANS						
Rotation 1:						
Rotation 2:	Cadavers: brachial plexus and Spinal cord male	8-Nov	11/10/2017 (veteran's day)	13-Nov		11/14-11/16
Rotation 3:	Cadavers: brachial plexus and Spinal cord female Upper and Lower Extremity Nerves- muscles models	8-Nov	11/10/2017 (veteran's day) 11/10/2017 (veteran's day)	13-Nov		11/14-11/16
Lab 11: Special Senses/ Peripheral nerves						
Rotation 1:	Eye Model and Special senses histology		17-Nov	11/27/2017(after Tgiving)		11/28-11/30
Rotation 2:	hearing and ear models		17-Nov	11/27/2017(after Tgiving)		11/28-11/30
Rotation 3:	Eye dissection		17-Nov	11/27/2017(after Tgiving)		11/28-11/30
Extra open labs	12/2-12/3					
LAB PRACTICAL 2 Dec. 5-7	Arrive early to help your instructor			Sign up in the lab		