

# BIOL 221-1 (05606) and BIOL 221-3 (16478) Human Anatomy & Physiology: Part 2

Spring 2019 Semester (January 7 to May 10, 2019)

**LECTURE:** 50 minutes. MON, WED, FRI 1:00 PM — 1:50 PM MEMORIAL Room 114.

**LAB\*:** 2 hours & 50 minutes. THURSDAY (221-3) 10:00 AM — 12:50 PM SWAIN Room 306.  
2 hours & 50 minutes. THURSDAY (221-1) 1:00 PM — 3:50 PM SWAIN Room 306.  
**\*ONLY ATTEND YOUR LAB. The lab only seats 24 students.**

**Unit Hours/Credits:** 4 units/credits. Lecture: 3 hours. Laboratory: 3 hours.

**Instructors:** Aaron L. Ament, M.Sc., M.D. (Lecture and Thursday, 1 PM lab)  
Lori Ihli, B.S., B.A., B.S. Ed. (Thursday, 10 AM lab)

**MSU Office Location & Phone:** Swain Hall 308. Office Hours by appointment only. iPhone (701) 240-3373.

**E-mails:** [aaron.ament@ndus.edu](mailto:aaron.ament@ndus.edu) [lori.ihli@ndus.edu](mailto:lori.ihli@ndus.edu)

## Class Website:

[www.amentanatomy.com](http://www.amentanatomy.com) is the place to find PDFs of the lecture slides, lab sheets, this syllabus, and more. To prepare the lectures, I read the book and put into my own words the context of each chapter so you can easily follow along in lecture and take notes more efficiently and focus on what I am teaching rather than writing down every word. Graphics and photos that are in the Public Domain are also included where appropriate and available.

## Recommended Lecture Textbook:

**Human Anatomy & Physiology, 11th** Edition by Marieb & Hoehn (*older editions are satisfactory to use*) also... *virtually any other anatomy and physiology book is fine to use as a resource, and multiple copies are in the lab for use — please just leave them in the lab and don't take them home as they are for everyone.* We will cover Chapters 15 through 28 for BIOL 221.

## Lab Manual & Materials:

The lab manual is listed below. You may want a copy, but a brand new, clean copy is not necessary. An older, borrowed, or used edition is fine, but please be aware that you will be highlighting things you will need to know on the diagrams. It is possible to get by with the textbook version only, as many of the diagrams are the same. The choice is yours to make.

*Human Anatomy & Physiology Laboratory Manual (Main Version) by Elaine N. Marieb and Lori A. Smith, 11th Edition, Pearson. ISBN: 978-0-13-390238-9*

Lab materials (such as whiteboard drawings, lists of terms to memorize) are also put on the website after each lab. Bring your lecture notes and/or book to lab as each is very helpful. **Each lab begins with a quiz. Don't be late to lab, or you will miss the quiz (there is no make-up quiz if you have an unexcused absence).**

## Course Catalog Description:

Structure and function of the human body dealing with the special senses, endocrine system, blood, cardiovascular system, lymphatic system, immune system, respiratory system, gastrointestinal system, metabolism, urinary system, fluids & electrolytes, reproductive system, and pregnancy.

## **Placement Policies:**

Each section of lab will have no more than 24 students. The section will not be overloaded. Any student on the waiting list will automatically be added to the enrolled status by campus connection once a student drops before the last day to add classes in rank order. If you do not get enrolled by the last day to add classes, then you will need to register to take the course in a future semester. No exceptions. Register for classes early to get the course you want in the semester you want. BIOL 220 and BIOL 221 are known to fill quickly.

## **Prerequisites/Co-requisite Courses:**

BIOL 220 is the Prerequisite course for BIOL 221.

## **Does BIOL 221 meet any of MSU's General Education Requirements?**

Yes, BIOL 221 does meet MSU's General Education Requirements in the FC2: Lab Science category, but not the CCS, PSR, and IP categories (CCS = Critical Capacities and Skills, PSR = Personal and Social Responsibility, IP = Interconnecting Perspectives). BIOL 221 is typically taken by those with majors requiring human anatomy courses or as an elective for those with an interest in the subject matter.

## **Course Student Learning Outcomes:**

As a result of taking BIOL 221 you will cover part 2 of 2 courses covering human anatomy and physiology. The individual learning outcomes of BIOL 221 are listed in the course catalog description and match the list of lecture titles presented. **This is a hard course.** There will be about 1000 anatomical and physiologic terms introduced throughout the semester. Many of these words or their derivations will be familiar to you from their common usage, but many are specific to the language of anatomy and this will be evident right from the very first lecture. **It takes lots of time to memorize hundreds of new terms every few weeks, so be sure to work on it a little every day.** Aside from the new anatomical terms, you will primarily be learning normal (non-diseased state) anatomy and physiology of the human body. When appropriate and where it highlights or emphasizes the reason a particular anatomical part or physiologic processes is taught, I will encourage discussion and go over some example diseases or injuries to show the close tie between form and function. Together, both BIOL 220 & 221 should prepare anyone interested in any of the medical or allied health professions as a career. After studying all materials and resources in the course, the student will be able to:

### **Lecture:**

- Use anatomical terminology to identify and describe the locations of major organs in each organ system covered.
- Explain the interrelationships among molecular, cellular, tissue and organ functions in each system.
- Explain the physiological processes needed for the maintenance of homeostasis.
- Identify the causes and effects of homeostatic imbalances.
- Explain physiological processes of all body systems in detail and on an appropriate level (knowledge, comprehension, application and analysis).

### **Lab:**

- Apply appropriate safety and ethical standards.
- Appropriately utilize laboratory equipment, such as microscopes, dissection tools, general lab ware, bones, and anatomical models.
- Work collaboratively and effectively in a group.
- Direct their own learning activities.
- Locate and Identify anatomical structures.

## **Biology Program Goals met by BIOL 220 and BIOL 221:**

- To provide a foundation in the principles of biology and scientific inquiry.
- To provide broad training so the student can continue in a further study in Biology and related disciplines.

## Class Policies & Rules:

1. **Attendance to Lecture IS NOT recorded & does not contribute toward your grade**, but you will benefit from attending as I give plenty of example questions and tips for upcoming exams. I commonly will clarify what you should focus on in your studies. **PDFs of lecture slides are on the website.** These get updated before they are posted, but in general they should be available to print a week before the lecture or lab is taught.
2. **Lab Picture Quizzes are at the beginning of lab... don't be late, there is no makeup quiz for an unexcused absence!!! If you know you are going to be missing a quiz for any reason, you should plan to take the quiz EARLY (when possible), NOT AFTER the missed lab. This means you have less study time than if you did not miss your regular lab time. Due my time being occupied in the last half of the lab supervising dissections, there will be little to no time for QUIZ makeups. The make up time for a quiz is primarily at MY convenience, NOT yours, but I will try to be as accommodating as possible depending on the circumstances and timing of the absence.**
3. **You will still be held responsible for learning the material from any missed labs or lectures.** This again comes down to good time management skills. Preparing a good study plan within the first week of class will allow you to adjust as personal and family emergencies arise.
4. **If you miss any lab photo quiz or lecture exam, and make "no reasonable timely attempt" to let me know what is going on (sick, emergency, school team sports participation etc), then you get a ZERO for that lab practical exam, lecture exam or quiz.**
5. If you have a schedule conflict (MSU sanctioned sports event, planned surgery, pregnancy, doctor's appointments, etc.... ), tell me (*if possible*) **BEFORE** the exam or ASAP by email so we can plan another testing time. If you are sick, go see a doctor first and talk to me later about make up work. Be prepared that makeup exams will likely not be the same format as listed below (i.e. fill in the blank, essay, or other kind of test of my choice). **Ideally, all makeup lecture and lab exams will be done within a day or two of the one on the schedule. "Vacation plans" is NOT an excused reason for missing lecture, lab, quizzes, and exams, and will result in a zero for any missed quizzes and exams. I get asked this all the time, and it is your responsibility as a student to prioritize and pick one—school or vacation.**
6. **Cheating** will get you a ZERO on that exam. All you are allowed to use on lecture exams and lab practicals is your brain and a pencil. No scantrons are needed. See the undergraduate catalog and student handbook for more information on MSU's academic honesty policy and the penalties for violations of it. No **Plagiarism** is allowed.
7. **Anti-discrimination Statement:** In coordination with **Access Services**, reasonable accommodations will be provided for qualified students with disabilities (LD, Orthopedic, Hearing, Visual, Speech, Psychological, ADD/ADHD, Health-related, and other). **Please meet with me during the first week of class to coordinate any DSS accommodations.** Accommodations and alternative format print materials (large print, audio, disk or Braille) are available through Access Services, located in the lower level of **Lura Manor**, phone number (701) 858-3371 or email [evelyn.klimpel@minotstateu.edu](mailto:evelyn.klimpel@minotstateu.edu).
8. **Title IX Statement:**  
In the event that you choose to write or speak about having survived sexualized violence (including rape, sexual assault, dating violence, domestic violence, or stalking) Minot State University policy requires that, as your instructor, I share this information with Lisa Dooley, the Title IX coordinator. Lisa Dooley or one of the deputy Title IX coordinators will contact you to let you know about accommodations and support services at MSU as well as options for holding accountable the person who harmed you. You are not required to speak with them. If you do not want the Title IX coordinator notified, instead of disclosing this information to your instructor, you can speak confidentially with the following people on campus and in the community. They can connect you with support services and help explore your options now, or in the future.

MSU Counseling Center (Lura Manor, South lower level):	(701) 858-3371
24/7 Crisis Center and Shelter: Domestic Violence Crisis Center	(701) 548-2480
24/7 Rape Crisis Line: Domestic Violence Crisis Center	(701) 857-2500
Campus Ministry (Wellness Center, 2nd Floor)	
Campus Security:	(701) 500-2423
Minot Police Department	(701) 852-0111

9. There are some very specific rules regarding your experience in the the cadaver lab.
- a. Due to grouped activities in lab, and just 2 cadavers that need to last a year, it is absolutely necessary that you attend the lab section you are registered for. Remember, that any missed quizzes or exams can not be made up unless you follow the rules mentioned above. **It is best not to miss anything.** Quizzes are based on the previous lab's material. I will let you know what that material is when you come to lab. Do not expect to get a chance to take the quiz later in the lab if you show up more than a few minutes late.
  - b. You will do dissections of both animal organs and full human cadavers. While the animal dissections always go along with the new material presented each week, due to the sequence of how a cadaver is dissected some of the cadaver dissection material may not correlate till later in the semester. I will let you know if we have identified something from one of the cadavers from a previous dissection in the first half of the lab. This "mis-alignment" of what you are dissecting and what you are studying is really only present for the first half of the lab, towards the end... all of the lab stuff will be in sync.
  - c. **YOU WILL BE GRADED AND RESPONSIBLE FOR PARTICIPATING IN 2 DISSECTIONS. You must participate to pass, but there are "participation options" for those who do not want to cut or even touch the cadavers. At a minimum, you must be able to look at the cadavers, or else you might need to drop the course. The dissection participation options will be explained in lab, and there will be a sign up sheet posted in the lab for each lab section. The location to be dissected is decided by Dr. Ament from week to week based on the progress already made.**
  - d. **Photography, or video of the human cadavers of any kind, as well as mishandling, or disrespecting the human tissue are grounds for immediate failure of the course. In addition, you will NOT be eligible to take this course again in the future.**
  - e. Lori Ihli and Dr. Ament will provide a handout with the assigned information for that week, or write materials to be learned on the whiteboard in lab. These handouts are just to help you with note taking, they are NOT for turning in as a grade. Copies (if you lose it) will be posted to the class website.
  - f. **NO open shoes, NO flip-flops, NO sandals are allowed in the cadaver lab. If I can see the skin on your toes, you can NOT go in the cadaver lab area of the room.**
  - g. You must wear a lab coat and gloves to work with the cadavers. If you were only participating with documenting and navigating the dissection versus doing the actual dissecting, you can return your lab coat to the "clean" area. Dissecting students will put their lab coats into the laundry basket in the cadaver lab.
  - h. The window blinds to Swain 306 will be CLOSED when the cadaver lab blinds are open to prevent people in the hall from seeing the cadavers.
  - i. Put all loose fat, connective tissue and removed skin as instructed into the correct bins. NEVER remove any cadaver tissue from the cadaver lab. NEVER mix or move one cadaver's tissue with the other one. All tissues from each cadaver are kept separate.
  - j. Wash the tools in the sink with soap and water when you are done, and put them in the drying tray.
  - k. ALWAYS document your group's dissection in the correct log with each lab. This is part of your grade.
  - l. No food or beverages in the cadaver lab.
  - m. **NO person is to be admitted into the cadaver lab without staff approval. If the visit serves no academic purpose, the request to view the cadavers will be denied.**

10. There are **NO** "extra credit projects" in this course to earn additional points. **Tutoring services** are usually available each semester, but not guaranteed. If you are having trouble, ask me for help (do it early on so you can do well on quizzes and exams).
11. **There is no rounding of grades, and there is no curve to the class.** However, I do review all exam questions during the grading process, and please feel free to challenge any question or answer during the semester.

<u>a. Assignments &amp; Descriptions:</u>	<u>Points:</u>
— <b>Lecture</b> Exam #1 (covers Chapters 15 to 18):	100 points
— <b>Lecture</b> Exam #2 (covers Chapters 19 to 23):	100 points
— <b>Lecture</b> Exam #3 (covers Chapters 25 to 28):	100 points
— <b>LAB Picture Quizzes</b> (10 points each, <b>lowest 1</b> dropped):	100 points
— <b>LAB Mid-Term Practical</b> (covers labs 1 to 6):	100 points
— <b>LAB Final Practical</b> (covers labs 7 to 11):	100 points
— Cadaver Dissection Participation (2, -25 for each non-participation):	0 points
<b>Total Points:</b>	<b>600 points</b>

12. Letter Grade Breakdown:

— <b>85</b> to 100%	<b>A</b>	"Excellent"	<b>510</b> — <b>600</b> points
— <b>75</b> to 84.9%	<b>B</b>	"Good"	<b>450</b> — <b>509</b> points
— <b>65</b> to 74.9%	<b>C</b>	"Average"	<b>390</b> — <b>449</b> points
— <b>55</b> to 64.9%	<b>D</b>	"Poor / Passing"	<b>330</b> — <b>389</b> points
— <b>0</b> to 54.9%	<b>F</b>	"Fail"	<b>0</b> — <b>329</b> points

**\*\*\* ONLY go to your assigned lab day (you may attend the other lab ONLY with my permission)\*\*\***

**\*\*\* Vacation or wanting an extra day to study is NOT a reason to attend a different lab\*\*\***

**\*\*\* This schedule of lectures, labs, and quizzes is tentative and subject to change \*\*\***

## ANATOMY & PHYSIOLOGY 2 LECTURE at MINOT STATE UNIVERSITY

Spring 2019 BIOL 221-1 (05606), 221-3 (16478) Schedule at MSU.

Lecture from 1:00 PM to 1:50 PM in Memorial Hall Room 114. Instructor: Dr. Aaron Ament

Week	Day	Date	Lecture Schedule	Topic
1	<b>Monday,</b>	<b>January 7</b>	<b>No Lecture</b>	<b>MSU classes do not officially start till 4 PM today</b>
	Wednesday,	January 9	Chapter 15	Special Senses
	Friday,	January 11	Chapter 15	Special Senses
2	Monday,	January 14	Chapter 15	Special Senses
	Wednesday,	January 16	Chapter 15	Special Senses
	Friday,	January 18	Chapter 16	Endocrine System
3	<b>Monday,</b>	<b>January 21</b>	<b>No Lecture</b>	<b>MSU closed for Martin Luther King, Jr. Day</b>
	Wednesday,	January 23	Chapter 16	Endocrine System
	Friday,	January 25	Chapter 16	Endocrine System
4	Monday,	January 28	Chapter 17	Blood
	Wednesday,	January 30	Chapter 17	Blood
	Friday,	February 1	Chapter 17	Blood
5	Monday,	February 4	Chapter 18	Heart
	Wednesday,	February 6	Chapter 18	Heart
	Friday,	February 8	Chapter 18	Heart
6	Monday,	February 11	Chapter 19	Blood Vessels
	Wednesday,	February 13	Chapter 19	Blood Vessels
	<b>Friday,</b>	<b>February 15</b>	<b>LECTURE EXAM 1</b>	<b>Covers Chapters 15 to 18. 100 points. 50 Multiple Choice Questions.</b>
7	<b>Monday,</b>	<b>February 18</b>	<b>No Lecture</b>	<b>MSU closed for President's Day</b>
	Wednesday,	February 20	Chapter 19	Blood Vessels
	Friday,	February 22	Chapter 20	Lymphatic System
8	Monday,	February 25	Chapter 20	Lymphatic System
	Wednesday,	February 27	Chapter 20	Lymphatic System
	Friday,	March 1	Chapter 21	Immune System
9	Monday,	March 4	Chapter 21	Immune System
	Wednesday,	March 6	Chapter 21	Immune System
	Friday,	March 8	Chapter 22	Respiratory System
<b>10</b>	<b>March 11 to March 15</b>	<b>No Lecture</b>	<b>Spring Break</b>	
11	Monday,	March 18	Chapter 22	Respiratory System
	Wednesday,	March 20	Chapter 22	Respiratory System
	Friday,	March 22	Chapter 23	Digestive System
12	Monday,	March 25	Chapter 23	Digestive System
	Wednesday,	March 27	Chapter 23	Digestive System
	Friday,	March 29	Chapter 23	Digestive System
13	<b>Monday,</b>	<b>April 1</b>	<b>LECTURE EXAM 2</b>	<b>Covers Chapters 19 to 23. 100 points. 50 Multiple Choice Questions.</b>
	Wednesday,	April 3	Chapter 25	Urinary System
	Friday,	April 5	Chapter 25	Urinary System
14	Monday,	April 8	Chapter 25	Urinary System
	<b>Wednesday,</b>	<b>April 10</b>	<b>No Lecture</b>	
	Friday,	April 12	Chapter 26	Fluids & Electrolytes
15	Monday,	April 15	Chapter 26	Fluids & Electrolytes
	Wednesday,	April 17	Chapter 27	Reproductive System
	<b>Friday,</b>	<b>April 19</b>	<b>No Lecture</b>	<b>Easter Break</b>
16	<b>Monday,</b>	<b>April 22</b>	<b>No Lecture</b>	<b>Easter Break</b>
	Wednesday,	April 24	Chapter 27	Reproductive System
	Friday,	April 26	Chapter 27	Reproductive System
17	Monday,	April 29	Chapter 28	Pregnancy
	Wednesday,	May 1	Chapter 28	Pregnancy
	Friday,	May 3	Chapter 28	Pregnancy
18	<b>Wednesday,</b>	<b>May 8</b>	<b>LECTURE EXAM 3</b>	<b>Covers Chapters 25 to 28. 100 points. 50 Multiple Choice Questions.</b>

**ANATOMY & PHYSIOLOGY 2    LAB    at    MINOT STATE UNIVERSITY**

Spring 2019 BIOL **221-1** (05606), **221-3** (16478) Schedule at MSU.

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BIOL <b>221-3</b>	Lab	on Thursday	10:00 AM	to	12:50 PM	in	Swain Hall 306	Instructor: Lori Ihli
BIOL <b>221-1</b>	Lab	on Thursday	1:00 PM	to	3:50 PM	in	Swain Hall 306	Instructor: Aaron Ament

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<u>Week</u>	<u>Day</u>	<u>Date</u>	<u>LAB Schedule</u>	<u>Topic</u>	
<b>1</b>	<b>Thursday</b>	<b>January 10</b>	<b>No LAB the first week of School.</b>		
2	Thursday,	January 17	NO Quiz today	Lab 1:	The Eye & Cadaver Intro.
3	Thursday,	January 24	<b>Lab 1 Quiz</b>	Lab 2:	Hearing, Equilibrium and Taste.                      Dissection Time.
4	Thursday,	January 31	<b>Lab 2 Quiz</b>	Lab 3:	Blood.                      Dissection Time.
5	Thursday,	February 7	<b>Lab 3 Quiz</b>	Lab 4:	Heart & Basic Vessels.                      Dissection Time.
6	Thursday,	February 14	<b>Lab 4 Quiz</b>	Lab 5:	Arteries & Veins - Part 1.                      Dissection Time.
7	Thursday,	February 21	<b>Lab 5 Quiz</b>	Lab 6:	Arteries & Veins - Part 2.                      Dissection Time.
<b>8</b>	<b>Thursday,</b>	<b>February 28</b>	<b>Lab Mid-Term Practical Exam.    Covers Labs 1 to 6.    100 points.    Short Answer Questions.</b>		
9	Thursday,	March 7	<b>Lab 6 Quiz</b>	Lab 7:	Respiratory System.                      Dissection Time.
<b>10</b>	<b>March 11 to March 15</b>	<b>No LAB Spring Break</b>			
11	Thursday,	March 21	<b>Lab 7 Quiz</b>	Lab 8:	Digestive System.                      Dissection Time.
12	Thursday,	March 28	<b>Lab 8 Quiz</b>	Lab 9:	Urinary/Excretory System.                      Dissection Time.
13	Thursday,	April 4	<b>Lab 9 Quiz</b>	Lab 10:	Male Reproductive System.                      Dissection Time.
14	Thursday,	April 11	<b>Lab 10 Quiz</b>	Lab 11:	Female Reproductive System.                      Dissection Time.
15	Thursday,	April 18	<b>Lab 11 Quiz</b>	Review Time.	Dissection Time (if needed).
<b>16</b>	<b>Thursday,</b>	<b>April 25</b>	<b>Lab Mid-Term Practical Exam.    Covers Labs 7 to 11.    100 points.    Short Answer Questions.</b>		
17	Thursday,	May 2	***Lab is done - Study for your lecture final***		

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Each lab quiz covers the previous lab's material and will be worth 10 points (lowest 1 dropped) for a total of 100 points.

Each lab exam is worth 100 points.

You must participate in 2 cadaver dissections during the semester. Participation is required and will be explained in lab. 25 points will be deducted from your final point total for each dissection missed (max of 50 points can be deducted).