

BIOL 202–4 (03448)

Introductory Microbiology

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

LECTURE: 2 hours & 30 minutes. MONDAY 7:00 PM — 9:30 PM MAFB - Education Center

LAB: 1 hour & 50 minutes. WEDNESDAY 7:00 PM — 8:50 PM MSU - MOORE Room 318.

Unit Hours/Credits: 4 units/credits. Lecture: 3 hours. Laboratory: 2 hours.

Instructor: Aaron L. Ament, M.Sc., M.D.

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

E-mail: aaron.ament@minotstateu.edu
aaron.ament@ndus.edu

Class Website:

www.amentanatomy.com is the place to find PDFs of the lecture slides, lab sheets, this syllabus, and more. *However, it really does help to own the textbook and read it as most of my content comes from it.* I suggest reading each chapter once through to initially get a “rough feel” for the material to be presented in class. The notes on the website are intended to be a rough outline that you can add to as you learn. There will be examples I mention, and more detailed explanations given in lecture—so be sure to attend to get the best possible understanding of what you are responsible for.

Recommended Lecture Textbook:

Burton’s Microbiology for the Health Sciences, 11th Edition by Engelkirk & Duben-Engelkirk (*older editions are satisfactory to use*) also... *virtually any other general microbiology 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.*

Lab Manual & Materials:

Don’t buy any lab materials. I will provide all the handouts for lab. Some lab materials will also be on the website, such as sample math problems for some labs. Bringing your lecture notes and/or book to lab as each is very helpful. **Each lab has a graded assignment you complete in lab and turn in before you leave.** *Don’t be late to lab, or you will miss the lab demo and description of what you are doing that lab period.*

Course Catalog Description:

A survey of microbial cell biology, microbial genetics, microbial interaction with humans, and the impact of microorganisms on the environment.

Placement Policies:

Each section of lab will have no more than 18 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 202 is known to fill quickly.

Prerequisites/Co-requisite Courses:

None.

Does BIOL 202 meet any of MSU's General Education Requirements?

YES. BIOL 202 does meet the MSU's General Education Requirements in the FC2, CCS1 and CCS 6, and IP categories. (CCS = Critical Capacities and Skills, PSR = Personal and Social Responsibility, IP = Interconnecting Perspectives, FC = Foundational Content). It is typically taken by those with majors requiring the course or as an elective for those with an interest in the subject matter.

Course Student Learning Outcomes:

There will be hundreds of microbiologic and scientific 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 microbiology and this will be evident right from the very first lecture. It takes 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 terms, you will primarily be learning normal (non-diseased state) microbiology of the human body, and the environment as around 99% of the microbial world does not cause diseases. When appropriate and where it highlights or emphasizes the a unique or classic example, then a particular infectious microorganism will be presented and usually comes from those diseases the general public should be aware of. BIOL 142 should prepare anyone interested in any of the medical or allied health professions as a career.

Lecture:

- Use basic microbiologic terminology to identify and describe a survey of bacteria, fungi, viruses, protozoa, and other common parasites.
- Explain the basic differences between bacteria, fungi, viruses, protozoa, and other common parasites.
- Explain the impact and uses of microorganisms on humans.
- Identify common human diseases caused by bacteria, fungi, viruses, protozoa, and other common parasites.

Lab:

- Understand lab safety, and appropriately utilize common microbiology lab equipment.
- Work collaboratively and effectively in a group.
- Direct their own learning activities.
- Learn basic cultivation and staining techniques of bacteria.
- Understand the spread of disease, and the impact of antimicrobial therapy.
- Understand how to evaluate the effectiveness of various common disinfectants.

Biology Program Goals met by BIOL 202:

- 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. It is the textbook in my own words and give you an idea of what to focus the most on in your reading.
2. **Lab Attendance is Mandatory. There is a graded lab handout due at the end of each lab.**
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 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 or exam.** *Seriously*, just send me an email to let me know you are taking care of yourself or your family and I will figure out the scheduling for a makeup later. It really is only those students who choose to use NO reasonable communication method at all that I have no option left but to assign a zero for missed work.
5. If you have a schedule conflict (MSU 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 exams (and labs) will be done within a day or two of the one on the schedule.**
6. Cheating will get you a ZERO on that exam. All you are allowed on lecture exams and lab practicals is your brain and a pencil. No scantrons are needed. I also allow calculators for the lab practical exams, if needed.
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.
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 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).

10. 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.

11. <u>Testing Breakdown:</u>	<u>Points:</u>	<u>Format:</u>
— Lecture Exam #1 (covers Chapters 1, 2, 3, 4):	100 points	Multiple Choice
— Lecture Exam #2 (covers Chapters 5, 8, 9, 10):	100 points	Multiple Choice
— Lecture Exam #3 (covers Chapters 11, 13, 14, 19):	100 points	Multiple Choice
— LAB Reports (10 points each, <u>lowest 2 dropped</u>):	100 points	Short Answer
— LAB Exam #1 (covers Labs 1 to 6):	100 points	Short Answer
— LAB Exam #2 (covers Labs 7 to 12):	100 points	Short Answer

Total Points: 600 points

12. <u>Letter Grade Breakdown:</u>			
— 90 to 100%	A	"Excellent"	540 — 600 points
— 80 to 89.9%	B	"Good"	480 — 539 points
— 70 to 79.9%	C	"Average"	420 — 479 points
— 60 to 69.9%	D	"Poor / Passing"	360 — 419 points
— 0 to 59.9%	F	"Fail"	0 — 359 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 *****

INTRODUCTORY MICROBIOLOGY LECTURE at MINOT AIR FORCE BASE EDUCATION CENTER

Spring 2019 BIOL **202-4** (03448) Lecture Schedule at MAFB.
Lecture from 7:00 PM to 9:30 PM at the MAFB Education Center. Instructor: Dr. Aaron Ament

<u>Week</u>	<u>Day</u>	<u>Date</u>	<u>Lecture Schedule</u>	<u>Topic</u>
1	Monday,	January 7	Chapter 1	History and Introduction to Microbiology
2	Monday,	January 14	Chapter 2	Viewing the Microbial World
3	Monday,	January 21	No Lecture	Martin Luther King, Jr. Day
4	Monday,	January 28	Chapter 3	Cell Structure & Taxonomy
5	Monday,	February 4	Chapter 4	Microbial Diversity & General Staining Techniques
6	Monday,	February 11	LECTURE EXAM 1	Covers Chapters 1, 2, 3, 4. 100 points. 50 Multiple Choice Questions.
7	Monday,	February 18	No Lecture	President's Day
8	Monday,	February 25	Chapter 5	Eukaryotic Microbes (Algae, Protozoa, Fungi, Lichens, Slime Moulds)
9	Monday,	March 4	Chapter 8	Controlling Microbial Growth <i>In Vitro</i>
10	March 11 to March 15		No Lecture	Spring Break
11	Monday,	March 18	Chapter 9	Controlling Microbial Growth <i>In Vivo</i>
12	Monday,	March 25	Chapter 10	Microbial Ecology & Microbial Biotechnology
13	Monday,	April 1	LECTURE EXAM 2	Covers Chapters 5, 8, 9, 10. 100 points. 50 Multiple Choice Questions.
14	Monday,	April 8	Chapter 11	Epidemiology & Public Health
15	Monday,	April 15	Chapter 13/14	Diagnosing Infectious Disease, Pathology of Infectious Diseases
16	Monday,	April 22	No Lecture	Easter Break
17	Monday,	April 29	Chapter 19	Bacterial Infections
18	Monday,	May 6	LECTURE EXAM 3	Covers Chapters 11, 13, 14, 19. 100 points. 50 Multiple Choice Questions. This final exam is still at 7:00 PM in the same place you have lecture (MAFB Education Center).

INTRODUCTORY MICROBIOLOGY LAB at MINOT STATE UNIVERSITY

Spring 2019 BIOL **202-4** (03448) Lab Schedule at MAFB.

BIOL 202-4 Lab on Wednesday 7:00 PM to 8:50 PM in Moore Hall 318 Instructor: Dr. Aaron Ament

Week	Day	Date	LAB Schedule
1	Wednesday,	January 9	No LAB the first week of School.
2	Wednesday,	January 16	Lab 1: Safety & Ubiquity of Microbes
3	Wednesday,	January 23	Lab 2: Effectiveness of Handwashing
4	Wednesday,	January 30	Lab 3: Epidemiology
5	Wednesday,	February 6	Lab 4: Streak Isolation & Sterile Technique
6	Wednesday,	February 13	Lab 5: Normal Flora
7	Wednesday,	February 20	Lab 6: Microscope & Simple Staining
8	Wednesday,	February 27	Lab Mid-Term Practical Exam. Covers Labs 1 to 6. 100 points. Short Answer Questions.
9	Wednesday,	March 6	Lab 7: Gram Stain
10	March 11 to	March 15	No LAB Spring Break
11	Wednesday,	March 20	Lab 8: Endospore Stain
12	Wednesday,	March 27	Lab 9: Bacterial Growth & Serial Dilution
13	Wednesday,	April 3	Lab 10: Control of Microbial Growth
14	Wednesday,	April 10	Lab 11: Kirby-Bauer Assay
15	Wednesday,	April 17	Lab 12: Identification of an Unknown Bacteria
16	Wednesday,	April 24	Lab Mid-Term Practical Exam. Covers Labs 7 to 12. 100 points. Short Answer Questions.
17	Wednesday,	May 1	***Lab is done - Study for your lecture final***

Each lab report is worth 10 points.

The lowest 2 lab reports are dropped at the end of the semester.

A maximum total of 100 points can be earned on the top 10 scoring lab reports.

Each Lab practical is worth 100 points.

A maximum total of 300 points can be earned in lab.

There are 3 lecture exams (each worth 100 points) for a maximum total of 300 points from lecture exams.