

# Introductory Microbiology

## MB 230

### Summer 2018

Lecture: Nash 206

Lab: Nash 304



**Instructor: Shawn Massoni, Ph.D.**

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Course Syllabus

**Instructor:** Shawn Massoni, Ph.D.  
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<b>Lecture:</b>	<b>MB 230-001 (CRN#70503)</b>	<b>MTWR 8-9:50am</b>	<b>Nash 206</b>
<b>Lab Sections:</b>	<b>MB 230-010 (CRN#70504)</b>	<b>TR 10-11:50am</b>	<b>Nash 304</b>
<b>Course dates:</b>	<b>7/23/18 – 8/17/18</b>		

<b>Grading:</b>	Midterms..... 150 pts	A ..... 93 – 100%	C.....73 – <77%
	Final Exam ..... 80 pts	A- ..... 90 – <93%	C-.....70 – <73%
	Participation ..... 40 pts	B+ ..... 87 – <90%	D+ .....67 – <70%
	Homework..... 30 pts	B ..... 83 – <87%	D ..... 63 – <67%
	<u>Laboratory ..... 100 pts</u>	B- ..... 80 – <83%	D- .....60 – <63%
	Total ..... 400 pts	C+..... 77 – <80%	F..... <60%

**Midterms:** The three midterms are worth 50 pts each and will be multiple choice format. The dates for the midterms are listed in the lecture schedule. If a student misses an exam for any reason, the student will need to take a make-up version of the exam in essay question format within three days of the regularly scheduled exam date. If the make-up exam is not taken within the given timeframe, the student will receive a zero for the midterm. Any questions regarding grading of exams must be submitted in writing to the instructor for consideration within one week of the exam being returned.

**Final Exam:** The final exam is worth 80 points and will be a comprehensive final. Approximately 50 points of the final will cover material from the third unit and the remaining 30 points will review material from the first and second units. The date and time for the final **No accommodations for alternate final exam times or make up exams will be offered.**

**Participation:** In-lecture participation points are earned using Turning Technologies, a personal response system. This is also used for other in-lecture activities. Students are responsible for bringing a functioning device with them to earn participation points. No written responses are allowed.

**Homework:** There will be four homework assignments during the course, each worth 10 pts. 30 pts maximum are available for homework. If you do all four assignments, the lowest score will be dropped. Scores for late work will be reduced by 20% per day of the total homework score.

**Laboratory:** The laboratory portion is worth 100 pts of the total course points. See the lab manual for a detailed breakdown of the lab points. You cannot earn a passing grade in MB 230 if you do not pass the lab portion of the course. All lab related questions should be directed to the lab instructor(s).

**Extra Credit:** Extra credit points are available if you complete a pre-assessment survey AND a post-assessment survey. The pre-assessment survey will be available on Canvas during the first two days of the course. The post-assessment survey will be available after the last lecture session and until midnight on the day of our scheduled final.

**Academic Integrity:** The following is a condensed version of the Student Conduct Code on Academic Dishonesty. Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another. It includes:

(A) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information.

(B) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.

(C) ASSISTING - helping another commit an act of academic dishonesty.

(D) TAMPERING - altering or interfering with evaluation instruments or documents.

(E) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

**Expectations for Student Conduct:** <http://oregonstate.edu/studentconduct/offenses-0>

**Students with Disabilities:** Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at (541) 737-4098.

**Diversity Statement:** The College of Science strives to create an affirming climate for all students including underrepresented and marginalized individuals and groups. Diversity encompasses differences in age, color, ethnicity, national origin, gender, physical or mental ability, religion, socioeconomic background, veteran status, sexual orientation, and marginalized groups. We believe diversity is the synergy, connection, acceptance, and mutual learning fostered by the interaction of different human characteristics.

**Religious Holiday Statement:** Oregon State University strives to respect all religious practices. If you have religious holidays that are in conflict with any of the requirements of this class, please see me immediately so that we can make alternative arrangements.

## Tentative Lecture Schedule

(Possibly subject to change; announcements will be made in lecture and on Canvas)

Week	Day	Topic	Optional Alcamo's Textbook Readings (Chapters)
1	M	Course Introduction/Basics	Chapter 1
		History of Microbiology	1-2
	T	Genes/Information Flow	3-4
		Growth	3-4,9
	W	Metabolism I	9
		Metabolism II	9
	R	<b>Midterm I – Unit 1</b>	
		Taxonomy/Cell Structure	2-5
2	M	Cell Structure	3-5
		Prokaryotic Microbes	5
	T	Prokaryotic/Eukaryotic Microbes	5,7
		Eukaryotic Microbes	7
	W	Fungi	8
		Acellular Entities	6
	R	<b>Midterm II – Unit 2</b>	
		Human Microbiota	17
3	M	Innate Immunity	17
		Adaptive Immunity	17
	T	Chemotherapy	11
		Epidemiology	
	W	Pathogens/Viruses	18
		Pathogens/Bacteria/Eukaryotic	19
	R	<b>Midterm III – Unit 3</b>	
		Global Nutrient Cycles	16
4	M	Pollution/WWT	16
		WWT/Water Safety	
	T	Microbial Genetics	10,14,16
		Industrial/Agricultural Microbiology	12-15
	W	Food/Food Safety	12-15
		<i>Review for Final Exam</i>	
	R	<b>Final Exam – Unit 4 and Cumulative</b>	

### Course Policies

- **Electronics:** Use of electronics in the classroom is prohibited, other than those used for course related activities. If you are observed to be using them for non-course related activities (texting, social media, email, etc.) you may be asked to leave the class and forfeit participation points that day.
- **Correspondence:** Email correspondence with the instructor must be done through the students' ONID address or through Canvas messaging. Correspondence with the instructor is considered an extension of participation, so a professional tone is required.
- **Grades:** Students are responsible for ensuring grades have been added and entered properly onto Canvas. Students have 2 weeks from the time an assignment is handed back to contest a score. If a score is contested, this gives the instructor the opportunity to re-grade the assignment in its entirety. Any grade adjustments made after the 2-week period are at the instructor's discretion. Alternative assignments to make up points lost elsewhere in the class will not be offered.

- **Academic Integrity:** In any situation of academic dishonesty, the instructor will document the incident, permit the accused student to provide an explanation, advise the student of possible penalties, and take action. The instructor may impose any academic penalty up to and including an “F” grade in the course after consulting with the department chair and informing the student of the action taken.
- If you ask for points at the end of the term, you will lose ALL extra credit points and any points added back to exams.

### **Classroom Environment**

- The University, and this laboratory, should be a safe and comfortable working environment for all students. The expectation is that no student should feel awkward, embarrassed, unwelcome, or uncomfortable engaging in classroom activities or discussions. Please be conscious of your own language and behavior – it should be respectful to the other students and your instructor. If you are having any problems or need help, please bring it to my attention. It is my job to facilitate your education.

### **My pledge to you**

- I am here to foster an inclusive learning environment for everyone enrolled in the course and I will do everything within my power to do so. If you succeed, then I succeed – we’re in this together!
- Email is an excellent way to communicate with me and I will make every effort to respond to emails within one business day, but during high-volume periods expect delays up to three business days.

### **Course Materials and Resources**

**Required: Course Packet** – (for the lab) can be purchased at the OSU Book Store or printed from Canvas.

**Required: Canvas ([my.oregonstate.edu](http://my.oregonstate.edu)):**

- Using and getting used to this system will help you excel in the course
- Lab manual is purchased as a course packet from the OSU bookstore, but also available on Canvas
- Homework assignments, practice exams, unit outlines/study guides
- Lab quizzes; lab questions and responses

**Recommended Textbook:**

Alcamo’s Microbes and Society 2<sup>nd</sup> Edition (up to 4<sup>th</sup> Ed. now available), Benjamin S. Weeks; ISBN 978-0-7637-9064-6 or Prescott’s Microbiology 8<sup>th</sup> Edition, Willey/Serwood/Woolverton; ISBN 978-0-07-337526-7

**Neither textbook is required for the course.** Alcamo’s is a very casual and simplified text about how microbiology impacts our lives on a daily basis. Prescott’s is used by serious students of microbiology who desire a much deeper understanding of the material beyond the scope of MB 230.

## Course Outcomes

This is a four credit hour course with no prerequisites. MB 230 meets requirements for OSU Perspectives Biological Sciences Baccalaureate Core (Bacc Core) course credit. This course emphasizes the interrelationships between the microbial world and various topics including human health, antibiotics and vaccines, industry, agriculture, genetic engineering, food production and global cycles. Students will be challenged to critically assess relevant topics at the intersection of microbiology and public policy, such as vaccination and genetically modified organisms. Scientific theories, including Cell Theory, Germ Theory of Infectious Disease, and Gene Theory of Inheritance are discussed.

### OSU Perspectives Biological Sciences Learning Outcomes

1. Recognize and apply concepts and theories of basic physical or biological sciences.
2. Apply scientific methodology and demonstrate the ability to draw conclusions based on observation, analysis and synthesis.
3. Demonstrate connections with other subject areas.

### Lecture Outcomes:

1. Be able to define, identify and use the technical terms, keywords and concepts characteristic of basic microbiology.
2. Be able to distinguish between different groups of microorganisms and their unique characteristics.
3. Recognize specific pathogenic microorganisms and their relationship to human disease.
4. Evaluate and select appropriate ways by which to control or eliminate microorganisms in specific environments.
5. Explain both direct and indirect microbial impacts on human life, including economical, environmental and health impacts.
6. Apply basic microbiological knowledge to everyday interactions with microorganisms.

### Laboratory Outcomes:

1. Demonstrate competence in the use of a light microscope to visualize microorganisms.
2. Demonstrate competence in performing basic microbiological techniques, including:
  - a. Preparation of bacterial smears
  - b. Gram staining
  - c. Use of aseptic technique
  - d. Streak plate inoculation
  - e. Bacteriophage plaque assay
3. Evaluate the application of Koch's postulates in demonstrating a microorganism/disease correlation.
4. Record, interpret and evaluate observations made in the laboratory