

## General Microbiology MB 302 Ecampus

**Instructor:** Dr. Linda Bruslind

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**Credits:** 3

**Enforced Pre-requisites:** BI 212/213 and CH 331/332.

**Course Content:** Emphasis on cytology, physiology, metabolism, virology, growth and control of growth with coverage of the role of microorganisms in nature, in disease, and as useful tools (see **Class Schedule** below).

**Learning Resources:** the course content will be presented using narrated streaming lectures, assigned textbook reading, group worksheets, and individual assignments.

**Lectures** – the lectures will be available on a week-by-week basis as streaming video (refer to the Class Schedule).

Students should read the assigned pages in the online textbook first, before viewing the online lecture material.

**Textbook** – the textbook for the course is an open source textbook available online at

<http://library.open.oregonstate.edu/microbiology/>

### Learning Outcomes for the Course:

1. Retain specialized language relevant to microbiology.
2. Acquire an understanding of the fundamental concepts of microbiology including a detailed understanding of currently important aspects of microbial structures, metabolic diversity, bacterial and viral growth/replication, and bacterial genetics.
3. Demonstrate the ability to accurately analyze and apply information relating to microbial metabolism.
4. Evaluate the ways in which microorganisms and their products influence other organisms (including other microbes).
5. Demonstrate the ability to research the details associated with a particular microorganism and communicate the information clearly and concisely in writing.

<b>GRADING:</b>	Midterm I	100 pts.
	Midterm II	100 pts.
	Final Exam	100 pts.
	Get Acquainted Activity	4 pts.
	Quizzes	16 pts.
	Group Activities	30 pts.
	Activity Question Sets	30 pts.
	Redox Worksheet	10 pts.
	Microbial Paper	10 pts.
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	TOTAL	400 pts

Final grades are assigned on a straight percentage basis: A = 93-100%; A- = 90-92%; B+ = 87-89%; B = 83-86%; B- = 80-82%; C+ = 77-79%; C = 73-76%; C- = 70-72%; D+ = 67-69%; D = 63-66%; D- = 60-62%; < 60% = F. Incompletes (I) will not be given except in extraordinary circumstances. **If you choose S/U grading, you need to get 70% (C-) to get an "S."** Election of S/U grading should be known only to the student and their academic advisor.

**Pre/Post Assessment** (5 pts extra credit) – In order to gain rudimentary information about what students are learning in the course, a pre- and post-assessment of 10 multiple choice questions will be offered. A student will receive +2.5 pts extra credit for participating in each. Credit is based on participation, not score. The activity is designed to be closed note, closed book, no web, no outside sources at all, and based on **independent** performance. In order to participate, the pre-assessment must be taken by **Friday, Jan. 12, 11:55 pm PST**. The post-assessment will be offered **starting Saturday, March 17, 12:05 am**, and must be taken by **Tuesday, March 20, 11:55 pm PST**. Both tests will be available on Canvas.

**Get Acquainted Activity** (4 pts total) – In order to earn the 4 points for this activity students must participate in the get acquainted activity posted on Canvas, following the instructions listed. Students must participate in the activity by **Saturday, January 13, 11:55 pm PST**. No make-ups for missing the assignment will be given.

**Weekly Quizzes** (2 pts each, 16 pts total) – Each quiz is worth 2 points and will cover material from the textbook chapters assigned each week (equivalent to 1-3 textbook chapters). The lowest 2 quiz scores for each student will be dropped. These quizzes are designed as closed book, closed note with a limited time period (5 min.) and **must be completed within the time period, once opened**. Do not start each quiz until you have read the assigned chapters for the week and feel adequately prepared. **Quizzes are due by 11:55 pm PST Wednesday of each week, starting Week 1. Quizzes will auto-submit once time has expired or the due date has been reached. Re-takes are not allowed.**

**Weekly Group Activities** (3 pts each week, 30 pts total) – Each group activity is worth 3 points and will cover material from the textbook chapters and narrated lectures assigned each week (equivalent to 1-3 chapters/lectures). Students will be randomly assigned into groups and given a designation that will be used for the duration of the term (i.e. Student 1, Student 2, etc). **Students will have until 11:55 pm PST Thursday of each week (starting Week 1)** to complete the portion of the Google doc assigned to them, in order to get the 3 points associated with the activity. After the deadline any student in the group can add to, edit, or correct entries made by other students in their group, although no additional points will be awarded.

**Weekly Activity Question Sets** (3 pts for each set, 30 pts total) – Each activity question set is worth 3 points and will cover material from the weekly group activity (see above). Students may re-take each activity question set once, with the maximum score recorded for the final grade. They are open book, open note with no time limit, but they must be fully completed by the deadline. **Activity question sets are due by 11:55 pm PST Saturday of each week. Question sets will auto-submit once the due date has been reached. Re-takes are not allowed.**

**Exams** (100 pts each, 300 pts total) – Students are expected to take all three exams, as indicated on the syllabus. Each exam will cover one unit of information, as dictated on the Class Schedule. The final exam is not cumulative, and none of the exam scores are dropped, replaced or averaged. Students will be given 50 minutes for each midterm and 110 minutes for the final exam (per University regulations). Students will have three days in which to take each exam. Midterm I **must** be taken between Jan. 28-30, Midterm II **must** be taken between Feb. 25-27, and the Final Exam **must** be taken between March 18-20. **No exceptions will be made. Exams will auto-submit once time has expired or the due date has been reached. Re-takes are not allowed.**

This course requires that students take online exams under the supervision of an **approved** proctor, which may involve an additional fee. It is the responsibility of the student to schedule a proctor ahead of time. **If this will cause hardship, please drop the course before 11:55 pm PST on Sunday, Jan. 14 to avoid tuition charges.** It is important to submit proctoring requests as early as possible to avoid delays, with a recommendation of at least 2 weeks before each exam. Proctoring guidelines and registration for proctored exams are available online through the Ecampus testing and proctoring website (<http://ecampus.oregonstate.edu/services/proctoring/>) or contact Ecampus via phone: 541-737-9204/1-800-667-1465. Additional details about scheduling a proctor can be found on Canvas in the **Start Here** module.

**Redox Worksheet** (10 pts total) – The redox worksheet is an individual assignment and will be available through Canvas. The assignment will apply information about oxidation-reduction reactions for particular conditions or types of organisms. The assignment is due by **Saturday, Feb. 24, 11:55 pm PST**. Worksheets submitted after this time but within 24 hours will have 25% of the points docked. Assignments submitted 24-48 hours after the deadline listed will have 50% of the points docked. **Assignments submitted more than 48 hours late will not be accepted.**

**Microbial Paper** (10 pt total) – The microbial paper is an individual assignment and will be submitted through Canvas, using the TurnItIn tool. The assignment will allow each student to investigate a bacterium or archaean of their choosing, answering questions pertaining to information covered in class. The assignment is due by **Monday, March 19, 11:55 pm PST**. Papers submitted after this time but within 24 hours will have 25% of the points docked. Assignments submitted 24-48 hours after the deadline listed will have 50% of the points docked. **Assignments submitted more than 48 hours late will not be accepted.**

## Course Policies:

- **Class information:** (i.e. narrated lectures, activity/worksheets, quizzes) are posted on Canvas at [Learn@oregonstate.edu](mailto:Learn@oregonstate.edu) in weekly modules. Students must have an operational ONID account to access class material.
- **Correspondence:** email correspondence with the instructor must be respectful in nature and tone, with transparency as to sender.
- **Exams (midterm I, midterm II, final exam)** are only available through a proctor. Proctoring guidelines and registration for proctored exams are available online through the Ecampus testing and proctoring website (<http://ecampus.oregonstate.edu/services/proctoring/>) or contact Ecampus via phone: 541-737-9204/1-800-667-1465. Additional details about scheduling a proctor can be found on Canvas.
- **Quizzes** are available online through Canvas and are due **by 11:55 pm PST Wednesday** of each week, on the dates indicated. No late quizzes are accepted. Correct answers for the quiz questions will be revealed each Monday morning, by noon.
- **Group Activities** are available through Canvas and are due **by 11:55 pm PST Thursday** of each week, on the dates indicated. Points are only possible for entries made by Thursday for the group activity due that week. Correct answers for the group activities will not be posted but you are welcome to contact the instructor directly if you have questions or need clarification.
- **Activity Question Sets** are available online through Canvas and are due **by 11:55 pm PST Saturday** of each week, on the dates indicated. No late question sets are accepted. Correct answers for the activity set questions will not be posted but you are welcome to contact the instructor directly if you have questions or need clarification.
- **Individual Assignments** (redox worksheet, microbial paper) are available through Canvas and are due by the deadlines listed in the due date schedule (see below). Correct answers for each assignment will not be posted but you are welcome to contact the instructor directly if you have questions or need clarification.
- **Grading:** It is the student's responsibility to carefully examine all graded papers upon return. Students have **one week** to contest a score, from the time of the posting of a score. Any grade adjustments made after this period are at the instructor's discretion.
- **Late work:**
  - No make-up is given for the Get Acquainted Activity. Student must post an appropriate submission by the deadline listed.
  - No make-up is given for exams, quizzes, or activity question sets not taken within the specified time period. Exams, quizzes, and activity question sets must be **completed** by the deadline listed.
  - No make-up is given for group activity points. Group activity points are only awarded to each student who completes their assigned portion by 11:55 pm PST Thursday of each week, for the group activity assigned that week. Entries made after the deadline will be helpful for the group and for the individual student, in order to study the week's material, but are not eligible for points.
  - Individual assignments (redox worksheet and microbial paper) that are submitted after the deadline listed but within 24 hours will have 25% of the points docked. Assignments submitted 24-28 hours after the deadline listed will have 50% of the points docked. Assignments submitted more than 48 hours after the deadline listed will not be accepted.

## **Link to Statement of Expectations for Student Conduct:**

<http://studentlife.oregonstate.edu/studentconduct/offenses-0>

## **Statement Regarding Students with Disabilities:**

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

## MB 302E Class Schedule

Winter 2018

**Required Texts:** online open source MB 302 textbook, <https://openoregonstate.pressbooks.pub/microbiology/>

The lectures are available as streaming media on Canvas.

Unit	Week	Lecture	Topics	Reading Assignments	Learning Activities	Availability of class material*
<b>Extra Credit</b>			<b>Pre-Assessment</b>			<b>Available from Jan. 7-12</b>
1	1	1 2	Introduction to Microbiology Microscopes	Chapter 1 Chapter 2	Quiz 1 Group Activity 1 Activity Question Set 1	Available Sunday Jan. 7 to Saturday Jan. 13
	2	3 4 5	Cell Structure Bacteria: cell walls Bacteria: internal structures	Chapter 3 Chapter 4 Chapter 5	Quiz 2 Group Activity 2 Activity Question Set 2	Available Sunday Jan. 14 to Saturday Jan. 20
	3	6 7 8	Bacteria: surface structures Archaea Viruses	Chapter 6 Chapter 7 Chapter 8	Quiz 3 Group Activity 3 Activity Question Set 3	Available Sunday Jan. 21 to Saturday Jan. 27
<b>Midterm I on Lectures 1-8 (50 minutes)</b>						
2	4	9 10	Microbial Growth Environmental Factors	Chapter 9 Chapter 10	Quiz 4 Group Activity 4 Activity Question Set 4	Available Sunday Jan. 28 to Saturday Feb. 3
	5	11 12	Microbial Nutrition Energetics & Redox Reactions	Chapter 11 Chapter 12	Quiz 5 Group Activity 5 Activity Question Set 5	Available Sunday Feb. 4 to Saturday Feb. 10
	6	13, 14	Chemoorganotrophy	Chapter 13	Quiz 6 Group Activity 6 Activity Question Set 6	Available Sunday Feb. 11 to Saturday Feb. 17
	7	15 16	Chemolithotrophy & Nitrogen Fixation Phototrophy	Chapter 14 Chapter 15	Quiz 7 Group Activity 7 Activity Question Set 7 Redox Worksheet	Available Sunday Feb. 18 to Saturday Feb. 24
<b>Midterm II on Lectures 9-16 (50 minutes)</b>						
3	8	17 18	Taxonomy & Evolution Microbial Genetics	Chapter 16 Chapter 17	Quiz 8 Group Activity 8 Activity Question Set 8	Available Sunday Feb. 25 to Saturday March 3
	9	19 20 21	Genetic Engineering Genomics Microbial Symbioses	Chapter 18 Chapter 19 Chapter 20	Quiz 9 Group Activity 9 Activity Question Set 9	Available Sunday March 4 to Saturday March 10
	10	22 23, 24	Bacterial Pathogenicity Viruses	Chapter 21 Chapter 22	Quiz 10 Group Activity 10 Activity Question Set 10 Microbial Paper	Available Sunday March 11 to Saturday March 17
<b>Extra Credit</b>			<b>Post Assessment</b>			<b>Available from March 17-20</b>
<b>Final Exam on Lectures 17-24 (110 minutes)</b>						

\*see specific due dates for individual items on next table. Items are not available after the due date has passed.

**MB 302E Due Dates**

Winter 2018

Unit	Week	Lectures	Item	Due Date
<b>Extra Credit</b>			<b>Pre-Assessment</b>	<b>Must be taken sometime between Sunday Jan. 7 and Friday Jan. 12, 11:55 pm PST</b>
			<b>Get Acquainted Activity</b>	<b>Required post must be submitted by Saturday, Jan. 13, 11:55 pm PST</b>
1	1	1-2	Quiz 1* (5 minutes) Group Activity 1 Activity Question Set 1	Wednesday, Jan. 10, 11:55 pm PST Thursday, Jan. 11, 11:55 pm PST Saturday, Jan. 13, 11:55 pm PST
	2	3-5	Quiz 2* (5 minutes) Group Activity 2 Activity Question Set 2	Wednesday, Jan. 17, 11:55 pm PST Thursday, Jan. 18, 11:55 pm PST Saturday, Jan. 20, 11:55 pm PST
	3	6-8	Quiz 3* (5 minutes) Group Activity 3 Activity Question Set 3	Wednesday, Jan. 24, 11:55 pm PST Thursday, Jan. 25, 11:55 pm PST Saturday, Jan. 27, 11:55 pm PST
		<b>1-8</b>	<b>Midterm I*(50 minutes)</b>	<b>Must be taken sometime between Sunday Jan. 28, 12:05 pm PST and Tuesday Jan. 30, 11:55 pm PST (NO exceptions)</b>
2	4	9-10	Quiz 4* (5 minutes) Group Activity 4 Activity Question Set 4	Wednesday, Jan. 31, 11:55 pm PST Thursday, Feb. 1, 11:55 pm PST Saturday, Feb. 3, 11:55 pm PST
	5	11-12	Quiz 5* (5 minutes) Group Activity 5 Activity Question Set 5	Wednesday, Feb. 7, 11:55 pm PST Thursday, Feb. 8, 11:55 pm PST Saturday, Feb. 10, 11:55 pm PST
	6	13-14	Quiz 6* (5 minutes) Group Activity 6 Activity Question Set 6	Wednesday, Feb. 14, 11:55 pm PST Thursday, Feb. 15, 11:55 pm PST Saturday, Feb. 17, 11:55 pm PST
	7	15-16	Quiz 7* (5 minutes) Group Activity 7 Activity Question Set 7 <b>Redox Worksheet</b>	Wednesday, Feb. 21, 11:55 pm PST Thursday, Feb. 22, 11:55 pm PST Saturday, Feb. 24, 11:55 pm PST <b>Saturday, Feb. 24, 11:55 pm PST</b>
		<b>9-16</b>	<b>Midterm II* (50 minutes)</b>	<b>Must be taken sometime between Sunday Feb. 25, 12:05 pm PST and Tuesday Feb. 27, 11:55 pm PST (NO exceptions)</b>
3	8	17-18	Quiz 8* (5 minutes) Group Activity 8 Activity Question Set 8	Wednesday, Feb. 28, 11:55 pm PST Thursday, March 1, 11:55 pm PST Saturday, March 3, 11:55 pm PST
	9	19-21	Quiz 9* (5 minutes) Group Activity 9 Activity Question Set 9	Wednesday, March 7, 11:55 pm PST Thursday, March 8, 11:55 pm PST Saturday, March 10, 11:55 pm PST
	10	22-24	Quiz 10* (5 minutes) Group Activity 10 Activity Question Set 10 <b>Microbial Paper</b>	Wednesday, March 14, 11:55 pm PST Thursday, March 15, 11:55 pm PST Saturday, March 17, 11:55 pm PST <b>Monday, March 19, 11:55 pm PST</b>
<b>Extra Credit</b>			<b>Post-Assessment</b>	<b>Must be taken sometime between Saturday March 17, 12:05 pm PST and Tuesday March 20, 11:55 pm PST</b>
		<b>17-24 (not cumulative)</b>	<b>Final Exam* (110 minutes)</b>	<b>Must be taken sometime between Sunday March 18, 12:05 pm PST and Tuesday March 20, 11:55 pm PST (NO exceptions)</b>

\* Quizzes & exams are timed – once opened, they must be completed in one sitting, and will auto-submit once time has expired or the deadline has been reached. Re-takes due to auto-submission will not be allowed. Answers to quizzes/exams will be made available the day after the due date, by noon.