

**MB 303 Lab Schedule – Winter 2018**

<b>Date</b>	<b>Activity</b>	<b>Notes</b>
<b>Week 1</b> Wed., Jan. 10 or Thurs., Jan. 11		Introduction to the Lab
	Exercise 1	Use of the Microscope
	Exercise 2	Simple Stains: Microbial Morphology
	Exercise 3	Transfer of Bacteria
	Exercise 4	Environmental Sampling (take-home)
	<b>Safety Quiz</b>	<b>Mandatory 100% (online, due before next lab)</b>
<b>Week 2</b> Wed., Jan. 17 or Thurs., Jan. 18	<b>Exercises 1, 2</b>	<b>Lab Notebook Due</b>
	Exercise 3	finish
	Exercise 4	continue
	Exercise 5	Differential Stains
	Exercise 6	Pure Culture: Streak Plates
	Exercise 7	introduction
	Exercise 8	Scientific Writing (homework assignment)
<b>Week 3</b> Wed., Jan. 24 or Thurs., Jan. 25	<b>Exercise 7</b>	<b>Dilution Scheme Due</b>
	<b>Exercise 8</b>	<b>Assignment Due</b>
	Exercises 4 & 6	finish
	Exercise 7	Quantification of Bacteria
	Exercise 9	Culturing the Unculturable
<b>Week 4</b> Wed., Jan. 31 or Thurs., Feb. 1	<b>Exercises 3, 4, 5</b>	<b>Lab Notebook Due</b>
	<b>Midterm</b>	<b>Ex. 1-6, 8 (35 minutes)</b>
	Exercise 7	finish
	Exercise 10	Culturing Bacteria: Nutrition & Environment
	Exercise 11	Introduction to the Spectrophotometer
<b>Week 5</b> Wed., Feb. 7 or Thurs., Feb. 8	<b>Exercises 6, 7, 9</b>	<b>Lab Notebook Due</b>
	Exercise 10	Finish (class discussion of results: ≈1.5 h)
	Exercise 13	Identification of Unknowns (start)
	<b>Exercise 12</b>	<b>In-lab worksheet due before leaving lab</b>
<b>Week 6</b> Wed., Feb. 14 or Thurs., Feb. 15	<b>Exercise 13</b>	<b>Gram – and Gram + Flow Charts Due</b>
	<b>Exercise 12</b>	<b>Growth Curve (data sheet due before leaving lab)</b>
	Exercise 13	continue
	Exercise 14	Respiration/Fermentation/Anaerobic Respiration
<b>Week 7</b> Wed., Feb. 21 or Thurs., Feb. 22	<b>Exercise 12</b>	count plates ( <b>data sheet due before leaving lab</b> )
	Exercise 13	continue
	Exercise 14	finish
	Exercise 15	Additional Tests for Gram Positive Bacteria
	Exercise 16	Additional Tests for Gram Negative Bacteria
<b>Week 8</b> Wed., Feb. 28 or Thurs., Mar. 1	<b>Exercises 10, 11</b>	<b>Lab Notebook Due</b>
	Exercises 12, 13, 15, 16	finish
<b>Week 9</b> Wed. Mar. 7/ Tues. Mar. 8	<b>Exercise 12</b>	<b>Assignment Due</b>
	<b>Exercise 13</b>	<b>Unknown Reports due</b>
<b>Week 10</b> Wed., Mar. 14 or Thurs., Mar. 15	<b>Exercises 13, 14, 15, 16</b>	<b>Lab Notebook Due</b>
	<b>Lab Final</b>	<b>Ex. 1-16 (1.5 h)</b>

**All items are due at the start of student's scheduled lab day, unless otherwise indicated. Items not handed in by 1 pm on Wednesday or 9 am on Thursday on scheduled lab day will be marked as late (see Course Policies on pg. vi for details about late policy).**

### **Learning Outcomes for MB 303\***

#### **After successful completion of MB 303, students will be able to:**

1. Properly prepare and view microbiological specimens for examination using brightfield microscopy.
2. Use pure culture and selective techniques to enrich for and isolate microorganisms, using proper aseptic technique.
3. Estimate the number of microorganisms in a sample using both viable plate counts and spectrophotometric methods.
4. Evaluate a microbiological problem in the context of an unknown microorganism, using appropriate media-based methods for identification.
5. Accurately document and report observations and interpretations made during laboratory exercises.
6. Use appropriate microbiological lab equipment and methods, in order to conduct and analyze experimental measurements relevant to microbiology.
7. Practice safe microbiology, using appropriate protective and emergency procedures.

#### **Learner Expectations:**

1. Attend lab (on time) and stay until all lab exercises are completed.
2. Read laboratory exercises in lab manual before they are to be performed.
3. Bring lab manual and lab notebook to class.
4. Come already prepared to take exams (i.e. do not wait until the night before to cram).
5. Participate in learning activities and complete tasks on time.

\*All MB 303 learning outcomes have been derived from the American Society for Microbiology (ASM) *Curriculum Guidelines for Undergraduate Microbiology*, Part 2: Competencies and Skills, Microbiology Laboratory Skills, published Sept. 2014.

[http://www.asm.org/images/Education/FINAL\\_Curriculum\\_Guidelines\\_w\\_title\\_page.pdf](http://www.asm.org/images/Education/FINAL_Curriculum_Guidelines_w_title_page.pdf)

## MB 303 LABORATORY

### Instructors

Dr. Linda Bruslind, 322 Nash, 737-1842, [bruslindl@oregonstate.edu](mailto:bruslindl@oregonstate.edu) (Wednesday lab)

Dr. Allison Evans, [Allison.Evans@oregonstate.edu](mailto:Allison.Evans@oregonstate.edu) (Thursday lab)

**Office Hours** - During lab period or by appointment (email instructor for available days/times)

**Pre-requisites/Co-requisites** – MB 302

### **Laboratory Supplies (required by each student)**

MB 303 Laboratory Manual (available for sale at OSU bookstore)

Bound lab notebook (i.e. spiral notebook or composition book)

Long-sleeved lab coat, either fabric or Tyvex (available for sale at OSU bookstore)

≈25 glass microscope slides (available for sale at OSU bookstore or from MSA)

### **Grading (approximate, subject to changes as necessary)**

EXAMS.....	75 pts.
LAB NOTEBOOK.....	150 pts.
UNKNOWN.....	100 pts.
<u>IN-CLASS POINTS &amp; ASSIGNMENTS.....</u>	<u>75 pts.</u>
TOTAL.....	400 pts.

**Points can be deducted at any time for not following instructions and/or safety rules as indicated in the MB 303 lab manual.**

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%; below 60% = F. For S/U grading a 70% (C-) or above is required to receive an "S". Election of S/U grading should be known only to the student and their academic advisor.

### **Format**

Each lab will begin with a lead-in lecture about the principles for the exercises and demonstrations of new techniques. **Students are required to read the exercises before coming to lab each week**, to optimize understanding, performance and allow for completion of the exercises during the allotted time. Ask questions when you do not understand a laboratory procedure. Good laboratory technique depends not only on knowing **what** you should be doing but **why** you should be doing it.

Some exercises require independent work while others will be done in pairs/groups. However, each student should perform their own observations, drawings, and write-ups for each exercise, to be recorded in a bound lab notebook.

### **Lab coats**

Each student must provide their own long-sleeved lab coat, to be left in the lab for the duration of the term or brought by the student each week. **Students without a lab coat will be asked to leave the lab.**

### **Care of Valuables**

Items of value should **not** be brought to the lab because of danger of theft or damage. The Department of Microbiology is not responsible for personal items brought to lab.

### **Accommodations of 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.

## Course Policies

- **Lab safety/lab procedures:** Students are expected to follow the rules for laboratory safety & procedures described in detail on pages ix-x. An online safety quiz (on Canvas) must be taken before the start of the 2<sup>nd</sup> lab. Each student may take the quiz as many times as necessary. A perfect score (100%) is mandatory or the student will not be allowed to continue in the lab.
- **Missed labs:** Attendance is mandatory. **Labs may not be made up outside of scheduled MB 303 lab times.** If you have more than 1 absence, you will receive an “I” if passing the course, an “F” if not passing the course. **In-class points cannot be made up.**
- **Tardiness:** Students are expected to be on time and be fully participatory for the scheduled lab time. Arriving at lab more than 10 minutes late two times will count as 1 absence. Arriving greater than 30 minutes late to lab will be considered an absence.
- **Attending a different MB 303 lab section:** attending the other MB 303 lab section is possible **only with prior permission of your instructor.** Email request to your instructor as soon as you are aware of a time conflict with your scheduled lab time.
- **Missed exams:** No make-up exams will be given. Missing an exam will constitute a zero.
- **Correspondence:** emails sent to instructors or TAs must be done using a student’s ONID account.
- **Lab Notebooks:** page vii describes expectations for the lab notebook.
- **Submission Policy:** Students are allowed to submit an assignment **once** for grading. Components of partially completed assignments are not eligible for the late policy once the assignment has already been handed in and graded. This applies to the lab notebook and external assignments.
- **Late Work:** all items are due at **the start of a student’s scheduled lab (1 pm Wednesday or 9 am Thursday)**, unless otherwise indicated on the syllabus. Items handed in before the end of a student’s scheduled lab (W 4:50 pm or R12:50 pm) on the date due will have 10% deducted. Items handed in by W 1 pm or R 9 am on the day following the due date will have 25% deducted. Items more than 24 hours late will **not** be accepted.
- **Grading:** students have **2 weeks** from the time that papers/exams are returned (or available for pick-up) to contest a score. Please look your papers over carefully! Points will be updated on Canvas every 1-2 weeks by the lab TAs. Check to make sure all your grades are recorded correctly. **If a grade is listed incorrectly or not posted, a student should contact their lab TA as soon as possible.**
- **Extenuating Circumstances:** exceptions to the course policies will be made only in the case of truly extenuating circumstances (i.e. serious illness, death in the family, car accident) that are documented (i.e. doctor’s note). The instructors retain the right to decide if circumstances are extenuating or not.

## Prohibited Academic Misconduct:

<http://studentlife.oregonstate.edu/studentconduct/academicmisconduct>

Students are expected to be honest and ethical in their academic work. Academic misconduct is defined as any action that misrepresents a student or group’s work, knowledge, or achievement, provides a potential or actual inequitable advantage, or compromises the integrity of the education process. It includes:

- cheating- use of unauthorized materials, information, tools, or study aids
- falsification- fabrication or invention of any information.
- assisting- any action that helps another engage in academic misconduct.
- tampering- interfering with an instructor’s evaluation of work by altering materials/documents.
- plagiarism- representing the words/ideas of another person or presenting someone else’s words, data, expressed ideas, or artistry as one’s own.

When evidence of academic dishonesty comes to the instructor's attention, 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 after consulting with his/her department chair and informing the student of the action taken.

All persons must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office.