BIOL 250 - GENERAL MICROBIOLOGY
SYLLABUS FALL 2017

INSTRUCTOR:
Dr. Eva M. Top, Life Sciences South 258
Phone: 208-885-5015
Email: evatop@uidaho.edu

LECTURE TIME AND PLACE: Tuesday/Thursday, 2:00pm-3:15pm, 104 JEB (Janssen Engineering Building).

OFFICE HOURS:
Mondays at 4:00-5:00pm and Thursdays 3:30-5:00pm. If you cannot make these hours, you can also make an appointment by talking to me before or after class sessions. If necessary, appointments can also be requested by email by suggesting at least three time slots, but a response may take more than 24 h.

LECTURE TEXT and WEBSITE:
The textbook is Brock Biology of Microorganisms, 15th edition (Madigan, Bender, Buckley, Sattley, Stahl); ISBN-13: 9780134268668. The UI Bookstore offers multiple options. I strongly recommend purchasing the access code for ‘Modified Mastering Microbiology’ because it will (i) provide you with a lot of animations, tutorials and review questions, (ii) I will use it for homework assignments that can give you up to 4% extra credit (see below), (iii) it comes with the eBook.

The schedule in this syllabus and the slides will refer to chapter and figure numbers of the 14th edition. If you use an older version of the Brock book, please carefully compare the chapter numbers and know that the figure numbers will not correspond.

The course website is administered through BbLearn and will provide access to a copy of this syllabus with up-to-date class schedule, Powerpoint presentations posted just before (or right after) lectures, and grades. I will also occasionally post some recommended readings, relevant news articles or links to relevant websites.

All students who are enrolled in BIOL 250 should have access: https://bblearn.uidaho.edu/webapps/login/ This will also be my primary form of communication with you outside of class. Check the website and your email often!!!

SYLLABUS:
This syllabus is advisory, not exhaustive. Details of the schedule may change, and probably will. Other materials and information about the course will be posted regularly. A pdf is available in BbLearn.

LABORATORY BIOL 255:
The lab is separate from this class, and taught by T. Steffens, Life Sciences South 168, phone: 885-8953, email: TimS@uidaho.edu. Many of the concepts learned here will be applied and tested in the lab.

COURSE OBJECTIVES:
The primary objective of this General Microbiology course is to provide a survey of the biology of microorganisms, with an emphasis on the domain Bacteria. This is an exciting time for Microbiology as the recent development of new methods have allowed us to learn much more about the evolution, diversity, structure and functions of these fascinating tiny organisms. Microorganisms are essential for human life on this planet, yet they can also be our enemies as they are the cause of numerous diseases. Understanding the positive and negative roles of microorganisms in our lives requires basic understanding of who they are and what they do.

In accordance with UI Learning Outcomes, it is expected that by the end of this course:
Learn & Integrate: Students will understand the structure, function, physiology, and diversity of Bacteria,
Archaea, Fungi, and viruses, and have a basic understanding of the genetics, genomics, and evolution of microorganisms.

**Think & Create:** Students will be able to apply the concepts and approaches learned in this course to solve future academic and professional problems.

**Communicate:** Students will effectively communicate microbiology concepts and data

**Clarify Purpose & Perspective:** Students will understand the relationship between microbiology and society.

**Practice Citizenship:** Students will be able to explain to a layperson some of the critical roles that microorganisms play in our daily lives.

**EXAMS and GRADING SYSTEM:**

There will be three lecture exams and a comprehensive final exam. Exams will consist of a combination of multiple-choice, fill in the blank, and short-answer questions. Lecture exams will be scheduled during the normal lecture period.

Total course points 500:
- Exam 1: 100
- Exam 2: 100
- Exam 3: 100
- Final: 160
- Participation: 40

Participation in class will be assessed through quizzes. See section PREPARATION, ATTENDANCE AND STUDENT CONDUCT.

Grading will be on a strict percentile basis, and letter grades will follow the University of Idaho grade scale:
- A 90 – 100%
- B 80 – 89.9%
- C 70 – 79.9%
- D 60 – 69.9%
- F 0 – 59.9%

**Extra credit:** Students can earn maximum 4% points of extra credit (thus 20 points total) through homework assignments (10 total, always in weeks with no exams; schedule posted in BbLearn). These will be provided through Pearson MasteringMicrobiology®, which requires the access code that comes with the textbook. Website: [http://www.pearsonmylabandmastering.com/northamerica/masteringmicrobiology/](http://www.pearsonmylabandmastering.com/northamerica/masteringmicrobiology/). It is linked with BbLearn, no need to sign up separately. Let me know immediately if you have trouble accessing MasteringMicrobiology®! I will not reopen homework assignments; check your schedule for weekly deadlines!

The final exam is required and cannot replace one of the other exams.

Be warned that I typically DO NOT curve individual exams, so please don’t ask. I may consider curving the final grades at the end of the semester, but only after all grades have been counted.

Make-up exams will be oral exams, and will only be allowed in the case of excused absence on the scheduled time of the regular exam. Excused absences are those that result from situations beyond the control of the student. These include (but are not limited to) personal illness, serious family illness or death, delayed flights, and sanctioned University events (e.g. athletics). Excused absences require some formal documentation such as a doctor’s note, email from a coach, proof of travel delay, etc.

Unexcused absences are those that are preventable by the student or are recreational in nature. These include (but are not limited to) oversleeping, forgetting to come to class, attending family functions (weddings, family trips, …), scheduling flights home while school is still in session, and personal leave days. Exams on days for which you have an unexcused absence CANNOT be made up and points are forfeited.

If you have a legitimate conflict with an exam date/time, you must let me know prior to the week of the exam to make arrangements for a makeup exam. Exam dates are firm - please make your plans accordingly. Missed exams cannot be made up without prior approval.
If you have more than two final exams scheduled on the same day as our final you may be eligible to re-schedule, but you must inform me no later than November 30.

**Final Exam:** Monday December 11 @ 12:30 - 2:30PM, 104 JEB.

**Review sessions:** Prior to examinations review sessions will be held if there is interest. Time and place will be announced.

**General considerations:** As this is a survey course, including for Microbiology majors, it will cover a great deal of material at a high pace. I suggest you keep up with the material and start preparing for the first exam now. See Preparation section below.

**Grade disputes:** If you feel that an assignment has been graded incorrectly, you have one week after receiving the graded assignment to dispute your score with me. You must return the assignment along with a written request for re-grading that includes a description of the dispute. Final grade assignment is at the discretion of the instructor.

**Communication:** Spelling, grammar, punctuation, logic and legible handwriting are critical elements of communication. You may lose points on exams for misspelling, poor grammar or syntax, flawed logic or illegible handwriting.

**PREPARATION, ATTendance AND STUDENT CONDUCT:**

Reading assigned material in advance is highly recommended, as it will be easier to follow the lectures, and the slides will not always contain all information necessary to do well on all tests. Chemistry classes Chem 101 OR Chem 111 are a prerequisite for this course. Courses that will be very helpful are: Cells and the Evolution of Life (BIOL 115), Introductory Biochemistry (Biol 380) or Survey of Biochemistry (Biol 300), and Organic Chemistry (Chem 277) or Carbon Compounds (Chem 275). If you are struggling with the course, please look up definitions or explanations in Mastering (Study area) and elsewhere on-line. Additional resources will be provided in BbLearn. Also consider tutoring: [http://www.uidaho.edu/studentaffairs/asap/tutoring-and-college-success/tutoring-at-ui](http://www.uidaho.edu/studentaffairs/asap/tutoring-and-college-success/tutoring-at-ui).

Attendance at lectures and active participation is strongly recommended and will allow you to earn 8% of course credit (see above), I will explain each concept, emphasize some aspects more than others, explain things again if you ask me, and go in a bit more detail than what is on the slides. We will be using the class engagement system Top Hat ([https://tophat.com/](https://tophat.com/)) during lectures. This will also be an opportunity for you to practice the types of multiple-choice questions that may show up on exams. All you need is a regular phone, or a smart phone, tablet or laptop with access to the UI wireless network. Grading will be as follows: if you get 80% of the points in Top Hat, you will get the maximum points for participation (40); if your final Top Hat score is lower than 80%, your final participation points will be proportional to your Top Hat points. Please sign up in week 1 – you should have received an invitation: [https://app.tophat.com/register/student/](https://app.tophat.com/register/student/), the ‘join code’ for this class is 807979. If you only have a ‘non-smart’ cell phone: call in +1 (315) 636-0905. See instructions posted in BbLearn and student orientation videos such as ‘Student Quick Start Guide’ at [https://support.tophat.com/s/categoryhome/Student](https://support.tophat.com/s/categoryhome/Student). Contact me right away if you have trouble accessing Top Hat for the class quizzes! I will not reopen quizzes for you if you were not present in class, except in case of legitimate excused absences (see below).

In the classroom, respect for one another and for the instructor is essential for an effective learning environment. Any behavior that is disruptive to the class, or deemed by the instructor to be disrespectful to fellow students or the instructor, will not be tolerated. You are expected to show respect to your classmates and instructor by listening when others are speaking, and not belittling the opinions of others, even when you disagree. Behavior intended to embarrass or ridicule others will not be tolerated and will have serious consequences. Respect also means no side conversations with fellow students, NO texting or inappropriate laptop or tablet use (Facebook, Twitter, surfing the web…), no ringing phones, no sleeping in class, and so on. Students who violate this rule may be summarily dismissed from class, and repeated violation may result in expulsion from the course with the student receiving a failing grade. See also the University of Idaho Classroom Learning Civility Clause footnote.

As your instructor, I will do my best to communicate the principles and concepts of general microbiology to you.
If you have concerns about the way materials are being presented, or do not understand certain concepts, or have comments about presentation format or content, please come talk to me, and I will endeavor to make things clearer. Please do not be shy: this is your education and your future. What you get out of this class will be proportional to what you invest in it.

**ACADEMIC HONESTY:**

Academic honesty is governed by Article II of the University of Idaho’s Student Code of Conduct ([http://www.webpages.uidaho.edu/fsh/2300.html](http://www.webpages.uidaho.edu/fsh/2300.html)). All students are expected to uphold the highest standards of academic honesty. Academic dishonesty includes but is not limited to cheating on examinations, plagiarism, falsification of academic or other records, and the acquisition or use of test materials without faculty authorization. Students are reminded that examinations are to reflect their own work and knowledge. All incidents of academic dishonesty will be reported to the dean of students. Individuals guilty of academic dishonesty will receive a failing grade. Even one incident of academic dishonesty may also merit expulsion from the University.

**ACADEMIC ACCOMMODATIONS:**

All students are expected to meet the standards for this course as set by the instructor. Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through Disability Support Services, located in the Idaho Commons Building, Room 306, in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course. Contact DSS at 208-885-6307, email dss@uidaho.edu or go to [www.uidaho.edu/dss](http://www.uidaho.edu/dss).

**OPPORTUNITIES FOR UNDERGRADUATE RESEARCH:**

I encourage students who are interested in microbiology research to participate in undergraduate research in one of the laboratories on campus. More information will be provided in class. Do not hesitate to ask me for more information.

**University of Idaho Classroom Learning Civility Clause:**

In any environment in which people gather to learn, it is essential that all members feel as free and safe as possible in their participation. To this end, it is expected that everyone in this course will be treated with mutual respect and civility, with an understanding that all of us (students, instructors, professors, guests, and teaching assistants) will be respectful and civil to one another in discussion, in action, in teaching, and in learning. Should you feel our classroom interactions do not reflect an environment of civility and respect, you are encouraged to meet with your instructor during office hours to discuss your concern. Additional resources for expression of concern or requesting support include the Dean of Students office and staff (5-6757), the UI Counseling & Testing Center’s confidential services (5-6716), or the UI Office of Human Rights, Access, & Inclusion (5-4285).

The University of Idaho bans firearms from its property with only limited exceptions. One exception applies to persons who hold a valid Idaho enhanced concealed carry license, provided those firearms remain concealed at all times. If an enhanced concealed carry license holder’s firearm is displayed, other than in necessary self-defense, it is a violation of University policy. Please contact local law enforcement (call 911) to report firearms on University property. For more information, see [http://www.uidaho.edu/public-safety-and-security/Weapons-on-Campus](http://www.uidaho.edu/public-safety-and-security/Weapons-on-Campus). The university remains committed to maintaining a safe work, living and learning environment on campus and does not tolerate any threatening use of firearms or any other weapons. While authorized license holders may have familiarity and be at ease carrying a loaded firearm, the university asks that they be aware that many people are not familiar with handguns and are uncomfortable in their presence.
### PROVISIONAL LECTURE SCHEDULE BIOL 250:

*(This will almost certainly change – keep track by coming to class and checking BbLearn! More details on which sections of the chapters to read will be announced through BbLearn)*

**Chapters refer to Brock Biology of Microorganisms, 15th edition**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading Assignment</th>
<th>Notes</th>
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<tbody>
<tr>
<td>August 22, 2015 (T)</td>
<td>Overview of course; Introduction into the Microbial World</td>
<td><em>Chapter 1: The Microbial World.</em></td>
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<td>August 24 (Th)</td>
<td>The Microbial World - continued</td>
<td><em>Chapter 1, continued.</em></td>
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<td>August 29 (T)</td>
<td>Microbial Cell Structure and Function - 1</td>
<td><em>Chapter 2.</em></td>
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<td>August 31 (Th)</td>
<td>Microbial Cell Structure and Function - 2</td>
<td><em>Chapter 2, continued.</em></td>
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<td>September 5 (T)</td>
<td>Microbial Growth and its Control – 1</td>
<td><em>Chapter 5.</em></td>
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<tr>
<td>September 7 (Th)</td>
<td>Microbial Growth and its Control – 2</td>
<td><em>Chapter 5, continued.</em></td>
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<td>September 12 (T)</td>
<td>Microbial Metabolism - 1 (Dr. L. J. Forney)</td>
<td><em>Chapter 3.</em></td>
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<tr>
<td>September 14 (Th)</td>
<td>Microbial Metabolism - 2 (Dr. L. J. Forney)</td>
<td><em>Chapter 3, continued.</em></td>
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<td>September 19 (T)</td>
<td>Guest Lecture: Careers in in Medical Laboratory Science, by Leah Daily, MLS(ASCP)(^{CM}), Education Technical Specialist, and Tim Burke, MLS(ASCP)(^{CM}), Clinical Microbiology Instructor (A case study approach will be used to describe the real-life experiences of working in a medical laboratory).</td>
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<td>September 21 (Th)</td>
<td>EXAM I</td>
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<td>September 26 (T)</td>
<td>Molecular Information Flow - 1</td>
<td><em>Chapter 4.</em></td>
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<tr>
<td>September 28 (Th)</td>
<td>Molecular Information Flow - 2</td>
<td><em>Chapter 4, continued.</em></td>
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<td>October 3 (T)</td>
<td>Microbial Regulatory Systems - 1.</td>
<td><em>Chapter 6.</em></td>
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<td>October 5 (Th)</td>
<td>Microbial Regulatory Systems - 2.</td>
<td><em>Chapter 6, continued.</em></td>
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<td>October 10 (T)</td>
<td>Virology</td>
<td><em>Chapters 8; Excerpts of 10.</em></td>
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<td>October 12 (Th)</td>
<td>Genetics of Bacteria and Archaea - 1</td>
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\(^{CM}\) Clinical Microbiology
October 17 (T): Genetics of Bacteria and Archaea - 2; Biotechnology & Synthetic Biology
Reading Assignment: Chapter 11, continued; Excerpts of Chapter 12.

October 19 (Th): EXAM II

October 24 (T): Microbial Systems Biology
Reading Assignment: Chapter 9.

October 26 (Th): Microbial Evolution and Systematic.
Reading Assignment: Chapter 13.

October 31 (T): Metabolic and Functional Diversity of Bacteria & Nutrient cycles
Reading Assignment: Excerpts of Chapters 14, 15.

November 2 (Th): Metabolic and Functional Diversity of Bacteria & Nutrient cycles, continued
Reading Assignment: Excerpts of Chapters 14, 15, continued.

November 7 (T): Phylogenetic Diversity of Bacteria
Reading Assignment: Excerpts of Chapter 16.

November 9 (Th): Diversity of Archaea & Microbial Eukarya
Reading Assignment: Excerpts of Chapters 17, 18.

November 14 (T): Microbial Symbioses with Humans
Reading Assignment: Excerpts of Chapter 24.

November 16 (Th): EXAM III

November 19-26: Thanksgivings Break

November 28 (T): Microbial Infection and Pathogenesis - Antimicrobials
Reading Assignment: Excerpts of Chapter 25.

November 30 (Th): Innate and Adaptive Immunity (Dr. Tanya Miura)
Reading Assignment: Excerpts of Chapter 27, 28.

December 5 (T): Epidemiology (Dr. Ben Ridenhour)
Reading Assignment: Excerpts of Chapter 29.

December 7 (Th): Catch-up, Wrap-up

Monday December 11: FINAL EXAM, 12:30 - 2:30PM, 104 JEB