University of Illinois at Chicago  
Department of Biological Sciences  
BIOS 351: Microbiology Laboratory

Syllabus

Course Description

Laboratory experience with brightfield microscopy; aseptic and pure culture techniques; staining and observation of microorganisms; identification of unknown bacteria; environmental influences and control of microbial growth; antibiotic sensitivity and resistance; bacterial examination of water; medical microbiology.

Credit Hours: 2
Prerequisite(s): Credit or concurrent registration in BIOS 350.
Laboratory: Science and Engineering Laboratories-East (SEL-E), Room 3083

Course Objectives

- Learn how to perform basic techniques such as culturing, staining, and microscopy
- Learn and perform tests that are used to identify and characterize bacteria
- Become familiar with microbiological references commonly used by scientists
- Write a scientific paper in grammatically-correct English with proper format and tone
- Learn how to recognize plagiarism and how to avoid plagiarizing reference materials

Staff Information

Teaching Assistants:

<table>
<thead>
<tr>
<th>Last</th>
<th>First</th>
<th>email (@uic.edu)</th>
<th>CRN</th>
<th>Class Meeting time</th>
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<tbody>
<tr>
<td>Bai</td>
<td>Heidi</td>
<td>jbai7</td>
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<tr>
<td>Gorman</td>
<td>Kevin</td>
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<td>Li</td>
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<tr>
<td>Pers</td>
<td>Dan</td>
<td>dpers3</td>
<td>33819</td>
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<tr>
<td>Rebiai</td>
<td>Rima</td>
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<td>Rui</td>
<td>rxiong4</td>
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Coordinators:
Andrea McGinley, Ph.D.
E-mail: amario3@uic.edu
Office: SEL-East, Room 4277
Office Hours: Wednesdays 2:00-4:00 PM; Fridays 9:00-11:00 AM

Blackboard
http://uic.blackboard.com

Announcements will be e-mailed to you and posted on Blackboard. It is your responsibility to verify the proper functioning of your UIC email address and check this site regularly.

Required Course Materials

- **Benson's Microbiological Applications.** Laboratory Manual in General Microbiology, 13th Ed. (short version). 12th edition and used copies are encouraged.

  Purchasing options:

  1. A full color, spiral-bound, paperback version of the 13th ed. lab manual is available at the UIC Bookstore. This is the most expensive option.
  2. A full color, electronic version of the 13th ed. lab manual is available from the UIC Bookstore. Ensure you will be able to print pages and bring them to lab before choosing an ebook, and consider the cost of printing throughout the semester.
  3. Full-color spiral-bound paperback used copies of the older 12th edition are available from amazon.com and other online sources. Exercise page numbers do not always match the 13th edition, but the content is mostly the same. This is the most cost-efficient option.

- Bring your own Sharpie permanent marker pens (Fine Point) to every lab session.

- **Beginning on 10/20/16,** you will need a reusable/disposable flame-retardant lab coat and safety goggles. You will begin a unit on Medical Microbiology which requires stricter safety protocols. Lab coats and goggles are available from the UIC Bookstore for $5.99 and $4.99, respectively. You may also bring your own lab coat/goggles and store it in the lab. It is recommended you wear a lab coat and goggles during the entire semester for your own protection, but they are not required until 10/20/16. DO NOT TAKE YOUR LAB COAT/GOGGLES HOME BETWEEN CLASSES. Safety glasses are also available in the lab and are UV-sterilized between each class, but most students prefer to bring/purchase their own pair. A limited number of lab coats/goggles left behind by former students are available in the lab on a first-come, first-served basis. If you wish to reserve one of these, contact the coordinator or your TA.
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- Beginning on 9/13/16, you will need a lab notebook that has carbon or carbonless-copy pages for completing your Unknown Identification project. You may use a notebook from another lab class; you will need approximately 20 consecutively-numbered pages.

Course Requirements

- Quizzes (Best 10 of 12) 100
- Laboratory Reports 100
- Unknown Project Papers 200
- Safety Contract 10
- Safety & Aseptic Technique Evaluations 40
- Streak Plate Exam 20
- Quantifying Bacteria Exam 20
- Gram Stain Exam 40
- Practical Exam 120

TOTAL 650 points

Course Grades

<table>
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<tr>
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<tr>
<td>80 – 89 %</td>
<td>B</td>
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<tr>
<td>70 – 79 %</td>
<td>C</td>
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<td>60 – 69 %</td>
<td>D</td>
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<tr>
<td>&lt; 60 %</td>
<td>F</td>
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The section average may be curved in the event that a section’s average is below 75%. If your section’s average is already above 75%, there will be no curve.

Expectations of Students

Academic Integrity

- Any act of academic dishonesty will be punished severely. These acts include but are not limited to falsification of data, plagiarism of published materials, copying of another student’s work (from this or any other semester), and cheating on quizzes or exams. The UIC Guidelines Regarding Academic Integrity may be found at http://www.uic.edu/ucat/catalog/GR.shtml#qa
Students with Disabilities

Students with disabilities who require accommodation for access and participation in this course should contact the coordinator as soon as possible after the start of the semester. All such students must contact the UIC Disability Resource Center, obtain a Letter of Accommodation (LOA), and submit your LOA to the course coordinator. Appropriate accommodations can then be arranged to support you. Check http://drc.uic.edu/ or call 312-413-2183 for more information.

Health and Safety

You will work with microorganisms in this lab that have the potential to cause human disease. All stock organisms used are certified ATCC strains and are recommended for use in educational Microbiology. Many have been genetically modified to reduce their risk to humans. However, you must still be aware that you are working with live microorganisms with the potential to infect you and others if handled carelessly. Safety procedures are in place to protect you and will be enforced rigorously. More details are found in the “Lab Supplies, Procedures, & Safety” document, which includes a Safety Contract you are required to sign in order to participate in this lab.

Individuals with a normal immune system who follow all safety procedures are at very low risk of becoming ill as a result of handling the microorganisms used in this lab. Students who have a deficiency in their immune system, are taking immuno-suppressant drugs, or are pregnant may be in a higher risk group. These students should consult their physician for advice and notify the course coordinator. Students who are primary care providers for immunosuppressed individuals, infants, or the elderly should be especially rigorous in following safety procedures, such as wearing gloves and lab coat for all labs, and being careful to not touch personal belongings or clothes with their gloves. Leave the germs in the lab; don't take them home with you! If any of these situations is applicable to you, please discuss your concerns with the course coordinator.

Attendance and Quizzes

- You must attend the lab section for which you are registered. Generally, there are no make-up labs. Do not assume that it is ok for you to miss lab due to travel plans.

- Pre-lab quizzes are given frequently throughout the term. Therefore, you must come prepared for every lab. Potential quiz questions are posted on Blackboard to help you in your preparation. Each quiz will be worth 10 points.
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- Quizzes are distributed at the beginning of your lab section and are collected after 10 minutes. If you miss a quiz because of tardiness or absence, you will receive zero (0) points for that quiz. There are no make-up quizzes. At the end of the semester, your quiz score will be the sum of your ten highest-scoring quizzes.

- You are expected to know the names and proper spelling of the organisms, media, and reagents discussed in the laboratory exercises. Each of your answers must sound the same as the actual answer when pronounced out loud. If your answer does not sound the same when pronounced out loud, you will not receive credit for your answer.

Lab Reports and Lab Notebook Page Submissions

- Lab Reports will be collected as indicated on the Lab Schedule. **You must submit all relevant reports before you leave the lab for the day.** Under no circumstances will late reports be accepted by your teaching assistant. Each Lab Report is worth 10 points.

- Lab Notebook Pages from a carbon-copy notebook are required for some labs, as indicated on the schedule. If you fail to submit more than two of the Lab Notebook Pages, five points will be deducted from your final point total for each missing report. Your teaching assistant may record a report as missing if it is poorly completed.

Unknown Project Paper

- Guidelines for writing the sections of the paper will be posted on Blackboard before the unknown project is completed. **When writing your paper, do not use guidelines or students’ papers from previous semesters. This is not acceptable for any reason!** In a recent semester, more than 10 students were accused of academic dishonesty because they copied from each other or copied from papers submitted in previous semesters. Your report will be checked with the plagiarism detection software SafeAssign. Assignments with plagiarism will be given a grade of ‘0’.

- Your assignments will be considered late if submitted any later than 15 minutes after the scheduled beginning of your lab section. The grade you earn will be penalized by 5% for each business day that an assignment is late beginning with the day that the assignment is due. For example-- if an assignment is due in your 12:00 PM section, and you submit your assignment at 12:20 PM, your grade for that assignment will be lowered by 5%. If you submit your assignment after 12:00 PM the next day, your grade will be lowered by 10%.

- If you need to submit an assignment after your lab section has ended for the day, you should bring it to the course coordinator’s office (SEL 4277). If the coordinator is not there, give your paper to the TA inside the lab. They will sign and date the paper and leave it for your TA. **You must have someone verify the date and time of your**
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Submission. No papers will be accepted outside of normal lab hours – if the lab is closed, you will need to wait until the lab reopens to turn in your assignment.

- Do not email your assignments to your teaching assistant or to the course coordinator. Do not leave your assignments under the door.

Practical Exam

- A cumulative practical exam will be given as indicated on the Lab Schedule.
- Additional information regarding the exam will be posted on Blackboard.
- If you miss the practical exam, you will be assigned a grade of INCOMPLETE only if you 1) contact the course coordinator and 2) provide proof of a valid excuse. Otherwise, you will receive zero (0) points for the final exam.