Kennesaw State University
Department of Biological & Physical Sciences
Summer 2015

Fundamental Microbiology Laboratory

Instructors: Dr. Melanie Griffin (Section 1)
Dr. Jerald D. Hendrix (Section 2)

Course: BIOL 2261L. All sections meet in Prillaman Health Sciences, 3413
Section 01: Tuesday AND Thursday, 2:00 – 4:00 pm
Section 02: Monday AND Wednesday, 2:00 – 4:00 pm

Catalog Description: BIOL 2261L; Fundamental Microbiology. 3-2-4.

Course Requirement and Prerequisite
C or better grade in BIOL 2221/2221L. Basic principles and techniques of microbiology including the various types of microbes, their morphology, metabolic processes and their relationships to humans; basic microbiology laboratory principles emphasizing fundamental isolation, identification, and culture techniques. Primarily for nursing majors. Cannot be used for credit toward a degree in Biology. You must have completed 2221 and 2221 Lab with a “C” or higher or you will be dropped from the course. Biology 2261 is a microbiology course primarily for nursing majors. This course cannot be used to satisfy the general education science requirement, nor can it be applied towards degrees in Biology, Chemistry, Biotechnology or Biochemistry.

Required Course Material
Lab
1) Lab Exercises (Hard copy required; Available on-line)
2) Safety glasses/goggles (Supplied, but you may want to purchase your own)
3) Lab Coat or Chemical Apron (Optional, but encouraged)
Learning Outcomes
The overall objective is to gain working knowledge and basic skills in the field of microbiology at an average level (70% of possible points) or above. As a result of completing this course with a grade of C or higher, students will:

1. Know and convey what microorganisms are, how they are similar and dissimilar, and the roles they play in human health.
2. Know and convey factors related to microbial growth and the control of microbial growth.
3. Identify infectious diseases by clinical signs, systems affected, how the immune response limits infection and the spread and control of diseases (epidemiology).
4. Show proficiency in the basic skills of handling, examining, and identifying microbes.
5. Investigate microorganisms as they relate to human health through experiments, and demonstrate knowledge of the experimental outcomes and interpretations.

Attendance
Attendance in lab is mandatory. Each absence from a lab date results in an automatic loss of 1.75 points toward the final lab grade. If a quiz was given on that day, you will receive a zero for a missed quiz. Leaving the lab before completion of the day’s work or arriving over 5 minutes late will result in deducted points. There will be no make-up labs scheduled if a lab is missed; however, for reasonable circumstances you may be able to attend another scheduled lab section if there is space and the laboratory instructor agrees.

Inclement Weather
In the event that class/lab could be cancelled due to inclement weather, the official status of the university can be checked through the KSU website: http://www.kennesaw.edu and click on Campus Advisories under Quick Links. The schedule is subject to change if class is cancelled due to weather, emergencies, or such; however, all attempts will be made to adhere to this schedule. If cancellation does occur, exams or assignments will be rescheduled/due for the next class/lab meeting.

Make-up Quizzes and Lab Practical
- Since two quizzes are dropped from lab, there will be NO make-up quizzes they will just count as your dropped quiz.
- If you arrive to lab late on a pre-quiz date you will be given the remaining time to complete the quiz after you have properly disinfected your lab space.
- There is no make up for the lab practical, make sure to give yourself the proper amount of time to get to lab on time to take the Lab Practical.

Course Grading Procedure & Policies
This is a University sophomore level course. Students are required to gain working knowledge of fundamental microbiology and be able to apply this knowledge. Grades are assigned based on student performances using lab quizzes and lab skills as measures of ability. A passing grade reflects the ability to test and complete assignments at 70% proficiency or higher. Consistent attendance, preparation, and participation in lab, are fundamental to doing well in this course. This includes reading the lab manual before coming to lab.

Final letter grades
Final letter grades A, B, C…in the course will be assigned according to the point breakdown listed below:
1. The grade in this class is determined by the total number of points earned on laboratory quizzes, laboratory attendance, and Lab Practicum (Table 1).
2. 60 for Pre-Laboratory Quizzes (Best 6 out of 8 quizzes, 10 points each)
3. 120 for Post-Laboratory Quizzes (Best 6 out of 8 quizzes, 20 points each)
4. 50 for Lab Practicum
5. 20 for Lab attendance and adherence to the safety rules.

<table>
<thead>
<tr>
<th>Graded Assignments</th>
<th>Totals</th>
<th>Final Course Grades</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Categories</td>
<td>Points</td>
<td>Grade Symbol</td>
<td></td>
</tr>
<tr>
<td>6 Pre-Lab Quizzes @ 10pts each</td>
<td>60</td>
<td>A</td>
<td>250-225</td>
</tr>
<tr>
<td>6 Post-Lab Quizzes @20pts each</td>
<td>120</td>
<td>B</td>
<td>224-200</td>
</tr>
<tr>
<td>Lab Practicum</td>
<td>50</td>
<td>C</td>
<td>199-175</td>
</tr>
<tr>
<td>20 for on-time laboratory attendance, participation and compliance with safety rules</td>
<td>20</td>
<td>D</td>
<td>174-150</td>
</tr>
<tr>
<td>Grand Total</td>
<td>250 pts</td>
<td>F</td>
<td>&lt; 149</td>
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</tbody>
</table>

**Laboratory Schedule**

Every Laboratory Schedule: The schedule is subject to change if class is cancelled due to weather, emergencies, or such; however, all attempts will be made to adhere to this schedule. Due to the holidays, it was necessary to compact the lab schedule such that some pre- and post quizzes will occur on the same day. However, opportunities to drop some low quiz scores have been included (see Evaluation section.) If cancellation of a lab does occur, exams or assignments will be rescheduled for the next class meeting.

1.75 points are awarded per regular lab meeting to students who arrive on time, have a hard copy of the day’s lab exercise(s), remain in compliance with the safety regulations in the lab and complete the work. Absence will result in loss of the two points and credit toward quizzes. You will not be allowed into the lab if you are more than ten minutes late, and that will count as an absence.
Week Beginning | Unit: | Pre-Quiz | Post-Quiz
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May 22 – June 2 | No Labs. Drop/Add Period. |  | 
June 3 – 4 | Unit 1. Transmission of Infectious Agents | Unit 1 | 
June 8 – 9 | Unit 2. Aseptic Technique and Culture Complete Unit 1 | Unit 2 | 
June 10 – 11 | Continue Unit 2 |  | Unit 1
June 15 - 16 | Unit 3. Control of Growth Complete Unit 2 | Unit 3 | 
June 17 – 18 | Complete Unit 3 |  | Unit 2
June 22 – 23 | Unit 4. Microscopy | Unit 4 | Unit 3
June 24 – 25 | Unit 5. The Gram stain | Unit 5 | Unit 4
June 29 – 30 | Unit 6. Medical Microbiology | Unit 6 | Unit 5
July 1 – 2 | Unit 7 Diagnostic Microbiology Complete Unit 6 | Unit 7 | 
July 6 – 7 | Unit 8. Antibiotic Susceptibility Testing Continue 7 | Unit 8 | Unit 6
July 8 – 9 | Complete Unit 7 |  | Unit 7
July 13 – 14 | Complete Unit 8 |  | Unit 8
July 15 – 16 | Laboratory Final Exam |  | 
July 20 - 21 | No Labs |  | 

**Laboratory Safety Guidelines**

Maintaining a safe working environment and lowering your risk of injury can be accomplished by following the laboratory safety guidelines, and by following and carefully performing the experimental procedures as written. Failure to follow the guidelines can result in personal injury, injury to those around you, and potential expulsion from the course after repeated violations. Laboratory instructors have the authority to have a student removed from the lab if the student refuses to follow safety guidelines, appears to be under the influence of alcohol or narcotics, or is a disturbance to the class. Each lab exercise has risks associated with them as outlined in the safety guidelines presented here. Review these guidelines before beginning the lab. In the event of an accident, notify the instructor and in the case of a serious condition contact the KSU Department of Public Safety at 770-423-6666. The following are standard operating procedures associated with the microbiology lab.
1. While waiting outside the teaching lab
   • The lab wing has a no food or drink policy. Please observe this policy and use areas designated in the building where eating and drinking are permitted.
   • Smoking is restricted to the designated smoking areas outside the building.
   • **Do not sit on the floors or place your book bags on the floor outside the lab.** Because biohazard materials move in and out of the room, there is a probability that infectious material could leak from autoclave bags and may not be cleaned properly. Sitting or placing personal items on the floor is a potential health risk.

2. Attire
   • Shoes must cover the entire foot. Do not wear open-toed shoes, sandals or slip-ons.
   • Shoulder length or longer hair is to be tied back before working in the lab.
   • Pants are required, no shorts or skirts are allowed.
   • Shirts must cover the shoulders and upper arms. If wearing strapless, sleeveless or tank top type shirt, then a lab coat or cover shirt must be worn.

3. Entering the teaching lab
   • Discard chewing gum or candy before entering the room. Place water bottles or food inside book bags and do not remove them until outside the lab and in a safe area.
   • Put all materials into the student storage cabinet except your safety glasses and lab coat. A lab coat or chemical apron is optional but strongly recommended.
   • Put on your glasses. These are to be worn at all times, unless told otherwise by the instructor.
   • Disinfect your lab surface area with bleach disinfectant before you place any items on the bench top. If you are sensitive to bleach or want to protect your hands then gloves should be worn.
   • Discard used paper towels in the garbage. Wash your hands.
   • At this point, you may have your lab instructions and a pencil or pen on the bench top. Keep purses, book bags, electronic devices and other non-essential supplies in the storage cabinet.

4. Safety in the lab
   • There is no eating, drinking, chewing (tobacco or gum), smoking, or application of cosmetics while in the lab. Again, all consumables must be in a book bag and stored in the cabinet.
   • Personal devices (phones, lap tops, PDA, tablets, iPods) are to be turned off and kept in the storage cabinets within a book bag or other protective carrier at all times. No electronics can be kept on your person or on the bench. The instructor will take safety violation points if these are out in lab. Calculators are allowed only when the instructor gives permission to use them.
   • Keep fingers, pencils, pens and hair away from the mouth when working in the lab.
   • Turn off Bunsen burner when not in use. Make sure it is turned completely off.
   • Notice the placement and use of eyewash stations, fire extinguishers, and first aid supplies.
   • Keep bench tops, floor and sinks free of trash.
   • Notify the instructor immediately in case of injury or spilling of live cultures or caustic chemicals.

5. Handling Cultures
   • Notice the location of disposal receptacles and areas. The instructor will remind of the proper methods for disposal of plates, tubes and paper. No cultures are to be taken outside the laboratory.
   • Dispose of agar plates in the biohazard receptacle (orange bags). NO GLASS!
   • Glass slides are discarded in a designated discard container in the back sinks.
   • Test tubes and other glassware are to be placed in the designated area (do not throw away!).
• Broken glass will be discarded in a broken glass container.
• Paper towels are to be discarded in the garbage.

6. Leaving the Lab
• If there is a need to leave the lab at any time, remove gloves and wash hands thoroughly before leaving.
• At the end of class, the bench top should be disinfected again, and hands washed or gloves removed before retrieving items out of the storage cabinet. **Washing your hands should be the last thing you do before you leave.**
• Any materials that have come in contact with a culture should be disinfected (if possible) before leaving the lab or discarded appropriately.

7. In case of emergency
• Notice all exit routes. If the room is unsafe, evacuate immediately using the safest route.
• Call the KSU Department of Public Safety at 770-423-6666. They can respond faster than a 911 call, and will alert other emergency responders. This contact number should be entered on your cell phone.
• In case of individuals injured in or who become ill in the lab, notify the instructor and make sure the immediate area is safe. Identify individuals certified in first aid and/or CPR and allow them to administer aid while someone contacts the KSU Department of Public Safety at 770-423-6666.

**Academic Integrity**

KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.

**Plagiarism and Cheating**

The above is in accordance to the University policy concerning plagiarism and cheating as stated in the KSU Student Code of Conduct. Refer to KSU document. All instances of academic misconduct, both intentional and unintentional, will be handled through established procedures of the University Judiciary Program ([http://www.kennesaw.edu/judiciary/procedur.shtml](http://www.kennesaw.edu/judiciary/procedur.shtml)). Students violating the University's academic honesty code are subject to University-level disciplinary action, which may include suspension or expulsion from the University. For exams, any student observed cheating will receive an automatic zero for the entire exam in addition to any penalties assessed through campus disciplinary procedures.
Academic Withdrawal Policy

Students may withdraw from one or more courses anytime before the last three weeks of the semester. However, as of Fall 2004, students will be allowed a maximum of eight total withdrawals if they enter KSU as a freshman. Transfer students will be allowed one withdrawal per fifteen credit hours attempted, for a maximum of eight. Students who choose to pursue a second degree at KSU will be allowed two additional withdrawals. Students who entered KSU before the Fall of 2004 will be allowed one withdrawal per fifteen credit hours attempted for a maximum of eight. To withdraw, the student should complete an official withdrawal form in the Office of the Registrar. Students who officially withdraw from courses on or before the last day to withdraw without academic penalty will receive a “W”. Students who officially withdraw after the last day to withdraw without academic penalty (and before the last three weeks of the semester) will receive a “WF”, which will be counted as an “F” in calculation of their grade point average.

The only exceptions to these withdrawal regulations will be for instances involving unusual circumstances, which are fully documented. Students may appeal to the academic standing committee for consideration of unusual circumstances.

Students cannot withdraw from their courses and remain in the program; they must carry at least 3 hours of credit. Program staff will not handle course withdrawals. Students must contact their home institutions (where they are registered) and handle the process themselves. They must provide the Faculty Member and Program Director with evidence that they have dropped the course.

Academic accommodations

Any student with a documented disability or medical condition needing academic accommodations of class-related activities or schedules must contact the instructor immediately. Written verification from the KSU disAbled Student Support Services is required. No requirements exist that accommodations be made prior to completion of this approved University documentation. All discussions will remain confidential."