Contact information:
Instructor: Mouna DiBenedetto
e-mail: dibenedettoms@cofc.edu
Office: Rita 245
Phone: 843-953-4847
Office hours: by appointment

Course Objective:
This course serves as an introduction to microbiology with a focus on the central role of microbes in the field of biology, the unique metabolic and organismal diversity of microbes, and their role in history from the origin of life to modern times. In addition, work in this course will help you to further develop and refine your skills in critical thinking, analysis, scientific communication, and interpersonal interactions.

Required Texts: Laboratory Manual (Provided on Oaks)
Optional text: Techniques in Microbiology: A Student Handbook, 1st Edition (a copy will be available for your use in lab)

Laboratory Specific learning goals
1. Use a microscope knowledgeably and with ease
2. Culture various bacterial species per their physiological needs and environmental adaptations
3. Quantify bacteria from samples including soil, water, and pure cultures
4. Use selective and differential media to identify unknown bacterial cultures

Grading
Your grade is weighted with 75% from lecture and 25% from lab.

Lab Component
Lab Notebook checks 6%
Unknown 1 2%
Unknown 2 3%
Pre-lab quizzes (ONLINE) 3%
Midterm 3%
Human Associated Microbe Presentation 3%
Lab Final 5%
Total 25%
Course Policies

Lab Specific Policies
a. To participate in laboratory exercises, you must have your lab coat and long pants (or acceptable alternative) to be underneath. You must wear closed toe shoes while in the microbiology lab. If you wear inappropriate footwear or forget leg coverings (long pants or acceptable alternative), you will not be allowed to stay in lab.
b. For some experiments, you must come in after hours to observe cultures or move them to the refrigerator as indicated in the lab manual.
c. There is to be no talking during quizzes or practical exams. You are required to remain in the laboratory during any tests and quizzes.

Laboratory Notebook:

a. Details on contents and layout of the laboratory notebook are available in the laboratory manual.
b. A bound laboratory notebook is required (no spiral notebooks). The pages will need to be numbered and you will need to keep an updated table of contents. You are not required to have a notebook that makes carbon copies. Your notebook will be graded.
c. Before you come to lab, read the required laboratory exercises and complete the pre-lab quiz. Copy the materials and methods to your lab notebook. It may be helpful to make brief, numbered lists of steps, and/or drawing a flowchart of the lab exercise(s).

Attendance:

Students who will miss lab for a university-sanctioned event (e.g. sports, music performance, etc.) need to notify the laboratory instructor no later than one week prior to the lab to be missed so that appropriate arrangements can be made. If you are feeling unwell and must miss lab, then it is the responsibility of the student to arrange for a make-up lab. It is not possible to attend the lab virtually or to make up lab virtually due to the nature of the hands-on skills of microbiology.

Safety: Additional safety information will be provided in lab.

a. Close-toed shoes and a lab coat is required. Gloves are be used while working with stains, hazardous chemicals, and bacterial cultures. Gloves and lab coats should not be worn outside the lab.
b. Long hair needs to be tied back or put up. This will prevent your hair from catching fire or falling into the bacterial cultures.
c. Wash hands at the beginning the lab period and before you leave the laboratory room.
d. Lab benches will need to be cleaned with disinfectant at the beginning of the laboratory period and after you have completed the laboratory exercises.

OAKS:

OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be regularly posted.
**Tentative Lab Schedule**
This is subject to change. Due dates and additional information will be available on the oaks page for each lab section. The handbook and laboratory manual will be provided in lab for your reference. The Brock textbook provides additional background for the exercises.

**Week 1 (January 16-20)**
No Labs

**Week 2 (January 23-27)**

<table>
<thead>
<tr>
<th>Exercises</th>
<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Overview</td>
<td></td>
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<tr>
<td>Lab Safety</td>
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<td>4-5</td>
<td>1-5</td>
</tr>
<tr>
<td>Lab notebook</td>
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<td>6-7</td>
<td></td>
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<tr>
<td>Using a micropipette</td>
<td></td>
<td>33-34</td>
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<tr>
<td>Compound Microscopes</td>
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<td>12-15</td>
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</tr>
<tr>
<td>Observing Microbes: Wet mounts</td>
<td>Chapter 1.7</td>
<td>12-18</td>
<td>74-86</td>
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<tr>
<td>Ubiquity of Microbes</td>
<td>Chapter 1.1</td>
<td>8</td>
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**Week 3 (January 30-Feb 3)**

<table>
<thead>
<tr>
<th>Exercises</th>
<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
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</thead>
<tbody>
<tr>
<td>Observing Microbes: Simple Staining</td>
<td>Chapter 1.3</td>
<td>19</td>
<td>87-93</td>
</tr>
<tr>
<td>Colony Morphology</td>
<td></td>
<td>9</td>
<td>60-62</td>
</tr>
<tr>
<td>Aseptic Techniques</td>
<td>Chapter 4.3, 4.17</td>
<td>20-21</td>
<td>27-41</td>
</tr>
<tr>
<td>Isolation of pure cultures: Streak Plating</td>
<td>Chapter 19.2</td>
<td>52-53</td>
<td>42-47</td>
</tr>
</tbody>
</table>

**Week 4 (February 6-10)**

<table>
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<tr>
<th>Exercises</th>
<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram Staining</td>
<td>Chapter 1.8</td>
<td>22-24</td>
<td>94-97</td>
</tr>
<tr>
<td>Isolation of pure cultures: Spread plate technique</td>
<td>Chapter 4.4, 19.2</td>
<td>52, 54-57</td>
<td>56-59, 183-190</td>
</tr>
<tr>
<td>Preparation of culture media</td>
<td>Chapter 4.1</td>
<td>30-32</td>
<td>14-16</td>
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**Week 5 (February 13-17)**

<table>
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<th>Exercises</th>
<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gram staining: Part 2</td>
<td>Chapter 1.8</td>
<td>22-24</td>
<td>94-97</td>
</tr>
<tr>
<td>Chemical Control of Microbial Growth</td>
<td>Chapter 4.19, 8.11, 28.5</td>
<td>35-41</td>
<td>206-212, 213-217</td>
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<tr>
<td>Examination of Exoenzymes</td>
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<td>85-87</td>
<td>121-124</td>
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<td>Unknown 1 assigned</td>
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### Week 6 (February 20-24)

<table>
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<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental parameters of growth-Oxygen and UV</td>
<td>Chapter 4.11-4.14, 4.16</td>
<td>48-51</td>
<td>70-73</td>
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<tr>
<td>Isolation of aerobic spore-forming organisms</td>
<td>Chapters 2.8, 8.6</td>
<td>43-44</td>
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<tr>
<td>Work on unknown 1</td>
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### Week 7 (February 27-March 3)

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<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
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</thead>
<tbody>
<tr>
<td>Lab Quiz (midterm)</td>
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<tr>
<td>Endospore staining</td>
<td>Chapter 2.8</td>
<td>27-28</td>
<td>112-115</td>
</tr>
<tr>
<td>Environmental parameters of growth-PH and Temperature</td>
<td>Chapter 4.11-4.14, 4.16</td>
<td>45-47</td>
<td>70-73</td>
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<tr>
<td>Unknown 1 due</td>
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### Week 8 (March 6-10)

*Spring Break - No Labs*

### Week 9 (March 13-17)

<table>
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<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
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</thead>
<tbody>
<tr>
<td>SIM and Motility agar</td>
<td>Chapter 2.9, 7.6</td>
<td>58-59</td>
<td>164-165</td>
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<tr>
<td>Flagella staining</td>
<td>Chapter 2.9</td>
<td>28-29</td>
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<tr>
<td>Examination of Water</td>
<td>Chapter 33.2</td>
<td>60-62</td>
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<tr>
<td>Differential Media - Part one</td>
<td>Chapter 25.5, 25.7, 29.1, 29.3 &amp; 31.2</td>
<td>63-68</td>
<td>168-169 &amp; 172-173</td>
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### Week 10 (March 20-24)

<table>
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<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
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<tbody>
<tr>
<td>Microbes of the Body Biochemical differentiation - Part one</td>
<td>Chapter 24.2 &amp; 24.5,</td>
<td>70-80</td>
<td>150-151, 166-167</td>
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<tr>
<td>Isolation of Lactic Acid Bacteria</td>
<td>Chapter 16.6</td>
<td>88-89</td>
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<tr>
<td>Snyder Test</td>
<td>Chapter 24.3</td>
<td>90</td>
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**Week 11 (March 27-31)**

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<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
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<tbody>
<tr>
<td>Biochemical differentiation - Part two</td>
<td>Chapter 3.6, 3.7, 3.10 &amp; 16.3</td>
<td>70-84</td>
<td>131-138, 142-143, 152-153, &amp; 159-160</td>
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<tr>
<td>Unknown 2 assigned</td>
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**Week 12 (April 3-7)**

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<th>Brock Readings</th>
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<tbody>
<tr>
<td>Work on unknown 2</td>
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<tr>
<td>Complete unknown Flow Charts</td>
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**Week 13 (April 10-14)**

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<th>Exercises</th>
<th>Brock Readings</th>
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<tbody>
<tr>
<td>Work on unknown 2</td>
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<tr>
<td>Human associated microbiology presentation</td>
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**Week 14 (April 17-21)**

<table>
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<th>Brock Readings</th>
<th>Lab Manual</th>
<th>Handbook Readings</th>
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<tbody>
<tr>
<td>Lab Notebook Check</td>
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<tr>
<td>Lab Final</td>
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<tr>
<td>Unknown 2 due</td>
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**Inclement Weather, Pandemic or Substantial Interruption of Instruction:**

If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.
College of Charleston Honor Code & Academic Integrity

As members of the College of Charleston community, we affirm, embrace and hold ourselves accountable to the core values of integrity, academic excellence, liberal arts education, respect for the individual student, diversity, equity and inclusion, student centeredness, innovation and public mission. Congruent with these core values, the College of Charleston expects that every student and community member has a responsibility to uphold the standards of the honor code, as outlined in the Student Handbook. In pursuit of academic learning, you are expected to reference the work of other scholars, and complete your own academic work, while utilizing appropriate resources for assistance. Any acts of suspected academic dishonesty will be reported to the Office of the Dean of Students and addressed through the conduct process. Your adherence to these practices and expectations plays a vital role in fostering a campus culture that balances trust and the pursuit of knowledge while producing a strong foundation of academic excellence at the College of Charleston. Any questions regarding these expectations can be clarified by your instructor.

Incidents where the student’s actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file.

Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This status indicator will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent.

Students should be aware that unauthorized collaboration is a form of cheating. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor. Students can find the complete Honor Code and all related processes in the Student Handbook at: http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php

Preferred Name and Pronoun Information:

I will gladly honor your request to address you by the name and gender pronouns of your choice. Please advise me of this early in the semester via your college-issued email account or during office hours so that I may make the appropriate notation on my class list. More info can be found here Preferred Name and Pronoun

Center for Student Learning:

Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call 843.953.5635.
Veterans and Active-Duty Military:
Veterans and active-duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to the instructor.

Special Arrangements:
The College will make reasonable accommodations for persons with documented disabilities. Students should apply at the Center for Disability Services/SNAP, located on the first floor of the Lightsey Center, Suite 104. **Students approved for accommodations are responsibility for notifying me**, and for contacting me one week before exam accommodation is needed.

This course will provide equal access.
- I am happy to work with all students to ensure that they have equal access to the educational experience of this class. Any student eligible for and needing accommodations because of a disability is requested to speak with me during the first two weeks of class or as soon as you have been approved for services so that reasonable accommodations can be arranged.
- The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104 ([http://disabilityservices.cofc.edu/for-faculty/faqs.php](http://disabilityservices.cofc.edu/for-faculty/faqs.php)). Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed. Students are also responsible for making test accommodation one week before the scheduled exam as detailed [here](http://disabilityservices.cofc.edu/accommodations/alternate-testing-site-ats/index.php).
- This College abides by section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services/SNAP, 843-953-1431 or me so that such accommodation may be arranged.

Religious Accommodation for Students:
- The College of Charleston community is enriched by students of many faiths that have various religious observances, practices, and beliefs. We value student rights and freedoms, including the right of each student to adhere to individual systems of religion. The College prohibits discrimination against any student because of such student’s religious belief or any absence thereof.
- The College acknowledges that religious practices differ from tradition to tradition and that the demands of religious observances in some traditions may cause conflicts with student schedules. In affirming this diversity, like many other colleges and universities, the College supports the concept of “reasonable accommodation for religious observance” in regard to class attendance, and the scheduling of examinations and other academic work requirements, unless the accommodation would create an undue hardship.
on the College. Faculty are required, as part of their responsibility to students and the College, to ascribe to this policy and to ensure its fair and full implementation.

- The accommodation request imposes responsibilities and obligations on both the individual requesting the accommodation and the College. Faculty members are expected to reasonably accommodate individual religious practices. Examples of reasonable accommodations for student absences might include: rescheduling of an exam or giving a make-up exam for the student in question; altering the time of a student’s presentation; allowing extra-credit assignments to substitute for missed class work or arranging for an increased flexibility in assignment dates. Regardless of any accommodation that may be granted, students are responsible for satisfying all academic objectives, requirements and prerequisites as defined by the instructor and by the College.

Additional campus resources:

Physical & Mental Health Resources

If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). If you find yourself experiencing any mental health challenges (anxiety, depression, stressful life events, sleep deprivation, loneliness, and/or homesickness) please consider contacting either the Counseling Center (professional counselors at http://counseling.cofc.edu or 843.953.5640) or the Cougar Counseling Team (certified volunteers through texting "4support" to 839863 or visit http://counseling.cofc.edu/cct/index.php). You can also visit both on campus on the 3rd floor of Robert Scott Small. These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.

Food & Housing Resources

If you are facing challenges in securing food and housing please contact the Dean of Students for support (http://studentaffairs.cofc.edu/about/salt.php). You can visit the Cougar Pantry in the Stern Center (2nd floor), a student-run food pantry that provides dry-goods and hygiene products at no charge to any student in need. For more information about food and housing assistance that is available to you, visit http://studentaffairs.cofc.edu/student-food-housing-insecurity/index.php

Links to additional resources:

- On Campus Gender Inclusive facilities
- College of Charleston Reporting Portals
- National Resources for Faculty & Staff
- GSEC Reports