A. COURSE INFORMATION

Course number/section: BIOL-2421.001
Class meeting time: 12:00-12:50pm MWF
Class location: BH 104
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Stella Doyungan, Ph.D.
Office location: Tidal Hall (TH) 232
Office hours: Monday and Wednesday at 04:00-05:00pm
Tuesday and Thursday at 3:30-5:00pm
Telephone: 361-825-3686
e-mail: stella.doyungan@tamucc.edu
Appointments: Preferably through email.

C. COURSE DESCRIPTION

• Catalog Course Description
An introduction to microorganisms including the bacteria, fungi and viruses. Laboratory involves microbiological techniques and development of basic laboratory skills.

• Extended Course Description
This course is designed for those students majoring and minoring in Biology, Biomedical Sciences, Environmental Sciences, Biochemistry, and Chemistry, and for post-baccalaureate students seeking to fulfill pre-professional requirements.
This course will cover history of microbiology and its contributors; the structure, function, growth and metabolism of prokaryotes in general; physical, chemical and antimicrobial drug methods of controlling microbes; basic genetics and Central Dogma of microbes; taxonomy and characterization of eight phyla within Domain Bacteria; ecology of microbes, including their role in biogeochemical cycling; and basic structures of viruses and fungi.

The laboratory involves hands-on manipulation of microbes; please see the separate lab syllabus and schedule. All lab activities use Biological Safety Level (BSL)-1 (less likely to cause disease) bacteria. The first four lab activities involve use and care of microscope, preparation of culture media, learning aseptic techniques, isolation streak of bacteria on plates, transferring bacteria from plate to broth to slant, etc.). The last four lab activities involve biochemical characterization, isolation of microorganisms from soil, and study of fungi and algae. Students, with allergy molds or specific antibiotics, with a history of seizures, who are pregnant or immunocompromised in any way should inform their lab.
Microbiology is very relevant to the science curriculum, regardless of your major; not only for medical concerns, but also for the safety of drinking and recreational water, food, bioremediation, and daily occurrences. Knowledge of microbiology can get you employed, in federal and state agencies (TDSHS, FDA, CDC), local municipalities (health departments, sanitation inspections, water and waste-water treatment), clinical laboratory science in hospitals, and industry (agricultural, breweries, biotechnology).

PREREQUISITES AND COREQUISITES

• Prerequisites BIOL1406 (Biology I), BIOL1407 (Biology II), CHEM1411 (Gen. Chemistry I) and CHEM1412 (Gen. Chemistry II)

• Corequisite SMTE0092
  Documented completion of SMTE0092 is required early in the semester for continued participation in this course.

  Students should also be able to perform basic calculations (add, subtract, multiply and divide using exponents and scientific notation), understand logarithms, and basic mathematical concepts.

D. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

• Textbook
  You are not obligated to purchase the on-line access code.

  Other reference:  

  Laboratory Manual

• Supplies
  Qwizdom responder, Lab coat and googles.
  These supplies can be purchased at the University bookstore.

E. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what
students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

At the end of the semester, the student will be able to:

SLO 1. **List or identify** persons involved in the history of microbiology from antiquity to the present.

SLO 2. **Discuss** the roles and significance of microorganisms within biology, including bacteria, viruses, fungi, algae and protozoa.

SLO 3. **Describe** the basic elements of microbiology, including structure, metabolism, and genetics of microorganisms.

SLO 4. **Perform** (in the laboratory component of the course) basic laboratory skills and basic microbiological techniques, including the isolation, culture, and biochemical identification of microorganisms.

SLO 5. **Sort** the major categories of physical methods and of antimicrobials used in control of microorganisms.

SLO 6. **Calculate** (laboratory and lecture) serial dilutions, and volumes of media from dehydrated stock.

SLO 7. **Categorize** levels of diversity within the microbial world including bacteria, viruses, fungi, algae and protozoa.

SLO 8. **Examine** the role of the scientific method in obtaining, critiquing, and confirming microbiological data.

G. **INSTRUCTIONAL METHODS AND ACTIVITIES**

Lecture will be the primary form of instruction. However, I will make use of “active learning” strategies such as using Qwizdom clickers for class quizzes, flipping, challenge-based instruction, peer instruction and cooperative learning. Sometimes, homeworks will be assigned and students will be quizzed about the homework. Occasionally classroom exercises will require student participation.

H. **MAJOR COURSE REQUIREMENTS AND GRADING**

- **Major Course Requirements**
  Lecture contributes 70% of your final grade, and laboratory contributes 30% of your final grade:

<table>
<thead>
<tr>
<th>Course</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>70%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Lecture
The lecture grade comprises grades in lecture exams, final exam and quizzes.

1. **Lecture Exams.** The exams cover specific assigned topics. They consist of multiple choice questions (identification, fill-in the blanks, matching type, true-false and short answer types). There are four lecture exams during the semester and each exam is worth 100 points. Each exam is worth 100 points.

2. **Final Exam.** Final Exam is comprehensive and consists of multiple-choice questions (identification, fill-in the blanks, matching type, true-false and short answer types). The final exam is worth 200 points.

3. **Quizzes.** Every lecture meeting, there are some questions for points and Qwizdom responders are used to answer these questions. The students are required to bring their functioning Qwizdom responder every lecture meeting. They must be present to answer the questions and are not permitted to use another student’s responder. Answering questions for another student absent in lecture is cheating and will not be tolerated. There is NO make-up for missed quizzes. The quizzes are worth 100 points.

**Grading in Lecture**

<table>
<thead>
<tr>
<th>Exam</th>
<th>Points</th>
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<tbody>
<tr>
<td>Exam 1</td>
<td>100</td>
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<tr>
<td>Exam 2</td>
<td>100</td>
</tr>
<tr>
<td>Exam 3</td>
<td>100</td>
</tr>
<tr>
<td>Exam 4</td>
<td>100</td>
</tr>
<tr>
<td>Final</td>
<td>200</td>
</tr>
<tr>
<td>Class Quizzes</td>
<td>100</td>
</tr>
</tbody>
</table>

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Total = 700 points

I WILL NOT ROUND DECIMALS OF LECTURE GRADES TO THE NEAREST WHOLE NUMBER.

Grading in Laboratory
The laboratory grade comprises grades in cumulative laboratory report, worksheets, quizzes and lab practical exam.

I WILL NOT ROUND DECIMALS OF LABORATORY GRADES TO THE NEAREST WHOLE NUMBER.

**Final grading:** Your final number and letter grade will be based on the grade you earn in the lecture and laboratory. Lecture grade is 70% and laboratory grade is 30%.

Final Grade = lecture grade (0.70) + laboratory grade (0.30)
Example: Final grade = 70 (0.70) + 90 (0.30) = 49.0 + 27 = 76
Final letter grade designation

90 -100  =  A  
80 - 89  =  B  
70 - 79  =  C  
60 - 69  =  D  
59 and less  =  F  

I WILL ROUND DECIMALS OF FINAL NUMBER GRADE TO THE NEAREST WHOLE NUMBER TO DESIGNATE LETTER GRADE.

How to pass this course?
1. Read the textbook and browse PowerPoint lectures before class.
2. Listen carefully during lecture and take good notes.
3. After class, review your lecture notes and use those notes as a guide to make connections between the lecture and your textbook. Do not just memorize – make connections.
4. Complete assigned homework to be prepared for a quiz.

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DAY</th>
<th>DATE</th>
<th>TOPIC</th>
<th>CHAPTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>08/26</td>
<td>Introduction and History I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>08/28</td>
<td>Introduction and History II</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>08/30</td>
<td>Microscopy and Microbial Structure I</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>09/02</td>
<td>Labor Day - No class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>09/04</td>
<td>Microscopy and Microbial Structure II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>09/06</td>
<td>Microscopy and Microbial Structure III</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>09/09</td>
<td>Microscopy and Microbial Structure IV</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>09/11</td>
<td>Microscopy and Microbial Structure V</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>09/13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>09/16</td>
<td>Microbial Metabolism I</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>09/18</td>
<td>Microbial Metabolism II</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>09/20</td>
<td>Microbial Metabolism III</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>09/23</td>
<td>Microbial Metabolism IV</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>09/25</td>
<td>Microbial Growth I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>09/27</td>
<td>Microbial Growth II</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>09/30</td>
<td>Microbial Growth III</td>
<td>4</td>
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<tr>
<td></td>
<td>W</td>
<td>10/02</td>
<td>Microbial Growth IV</td>
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<td></td>
<td>F</td>
<td>10/04</td>
<td></td>
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</tr>
<tr>
<td>7</td>
<td>M</td>
<td>10/07</td>
<td>Microbial Growth V</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>W</td>
<td>10/09</td>
<td>Microbial Control I</td>
<td>5</td>
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<tr>
<td></td>
<td>F</td>
<td>10/11</td>
<td>Microbial Control II</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>10/14</td>
<td>Microbial Control III</td>
<td>5</td>
</tr>
</tbody>
</table>
Final exam: TBD

Midterm Grading - October 16-30, 2019

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

- **Attendance/Tardiness**
  Students are expected to attend on time in every scheduled class and laboratory meeting. If the student is absent in the lecture, it is the student’s responsibility to obtain missed materials. If a student is absent in the laboratory, the student will be given a zero grade for the laboratory activity performed that day. Make-up is only permitted for an excused absence and emergencies.

Students with University’s approved absence (athletics, military duty, others) must notify the instructor in advance of the scheduled absence. In case of emergencies, students should inform the instructor about the situation as soon as possible.
Proper documentation is required for excused absences. It must be in writing and signed by the person of authority (coach, doctor, funeral director). Personal reasons such as getting married, going on vacation, attending weddings, reunions, household or car repairs and NON-EMERGENCY medical or dental visits are not acceptable.

- **Late Work**
  No late lab worksheets and lab reports are accepted.

- **Extra Credit**
  NO INDIVIDUAL extra credit projects or assignments will be available in this class. Opportunities to earn bonus points however, are provided for the ENTIRE CLASS.
  
a) There can be bonus points built as extra questions in the Qwizdom quizzes.
  
b) Some tests are given unannounced and questions answered correctly in these tests are extra credits to be added to an exam.
  
c) 15 bonus points are given to students who attend 80% of class lecture days (*Exam days not included*). This 15-bonus points is ALL OR NONE, which means that if your attendance is less than 90% you will not get the 15 bonus points. Attendance in class is taken by answering the attendance question using the Qwizdom remote control at the end of the lecture. If you leave early and cannot answer this question, you are marked absent.

- **Cell Phone Use**
  Students are required to put their cell phones to silent mode during class. Sending text messages during class are not allowed.

- **Laptop Use**
  Laptops, I pads or similar tablet PC usage is limited to class-related activities such as taking notes and looking at the PowerPoint lectures and study guides.

- **Food**
  Please eat your meals before or after class. However, I will not take food away from you. In the laboratory, eating and drinking is prohibited.

- **Missed Exam**
  Special exam is given to students with excused absence (excused per TAMUCC guidelines) and the format of such exam is ESSAY and SHORT ANSWER TYPES.

- **Participation**
  Participation in class is voluntary but encouraged. Extra credit points sometimes will be available for participation.
• **Returning Exams**
  Exams will not be returned to students. Students, however, will have the opportunity to look at the exam questions after their score report are given back by meeting with their lab TA during their lab office hours. Students are not allowed to take picture or Xerox the exam. Also, there is no provision for reviewing the previous exams before the final exam.

• **Interrupted Exam**
  If there is a disruption during the exam that requires evacuation of the building, a make-up exam will be given to students that have not finished the test. No make-up exam will be given to students that have finished the test. The schedule of the make-up exam will be announced, and the format of the exam will be multiple choice. The same rule applies to students taking exam in Exam Services.

#### K. COLLEGE AND UNIVERSITIY POLICIES

• **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

• **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high-quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.
Deadline for Dropping a Course with a Grade of W (University)
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

Grade Appeals (College of Science and Engineering)
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

Disability Services
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816. http://disabilityservices.tamucc.edu/

Statement of Academic Continuity
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class
activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. OTHER INFORMATION

• Academic Advising
The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.