BIOL 2421.001  MICROBIOLOGY  FALL 2010  v5
TEXAS A&M UNIVERSITY—CORPUS CHRISTI
COLLEGE OF SCIENCE & TECHNOLOGY

Instructor: Gregory W. Buck, Ph.D.
Office Phone: 361.825.3717  E-mail: Gregory.Buck@tamucc.edu
Office: Center for the Sciences 251
Office Hours: Mon Wed 10:00 a.m.-11:15 a.m., Tues Thurs 1:00 p.m.-2:15 pm  Other
days & times: By appointment.
Lecture: MWF 12:00-12:50 pm; ST101
Laboratory Sessions: In CS233, as described in schedule
Prerequisites: Biol 1406, 1407; CHEM 1311, 1312

Course Description: This course is designed for those students majoring and minoring in
Biology. In this course, students will receive a broad background on microorganisms,
including bacteria, fungi, and viruses, and algae and selected protozoa. The laboratory
component will involve learning basic laboratory skills and microbiological techniques.
Please see the course schedule for the outline of topics to be covered.

Student Learning Outcomes:
Students will be able to achieve all outcomes at a level of ≥70%:
1. List or identify persons involved in the history of microbiology from antiquity to the
   present;
2. Discuss the roles and significance of microorganisms within biology, including
   bacteria, viruses, fungi, algae and protozoa;
3. Describe the basic elements of microbiology, including structure, metabolism, and
   genetics of microorganisms;
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;
5. Sort the major categories of physical methods and of antimicrobials used in control
   of microorganisms
6. Calculate (laboratory and lecture) serial dilutions, and volumes of media from
   dehydrated stock;
7. Categorize levels of diversity within the microbial world including bacteria, viruses,
   fungi, algae and protozoa;
8. Examine the role of the scientific method in obtaining, critiquing, and confirming
   microbiological data.

Textbooks: REQUIRED—Microbiology: A Human Perspective, 6th ed., 2009, Nester,

Low cost text alternative: There is also an "e-book" available for $71.00, which can be
purchased from www.coursesmart.com by using the author name "Nester" or by typing in
the ISBN: 978-0-07-726765-0. Books may be viewed as digital downloads, or in an on-
line viewing format. I have not used this system for this textbook.
Note: The 5th edition of this book (mauve cover) will suffice, but figures may be taken from 3rd, 4th, 5th, or 6th editions.

Lab Manual: REQUIRED -- Lab Exercises in Microbiology by John P. Harley. As of the writing of this syllabus in July 2010 to comply with Texas HB 2504, a new 8th edition was just published, but it may or may not be available by the first day of lab in August 2010. Either the 7th or 8th edition of Harley will suffice for the lab. Cost: TBA but estimated ~$110 new.

Note: The 6th edition of the lab manual is still adequate.

Other Required Materials Not Covered in Fees: Lab coats, lab notebooks

Audience Defined: Sophomore and junior Biology and ESCI students with knowledge of General Chemistry; also Chemistry students and post-baccalaureate students fulfilling professional school admission requirements.

Co-Instructors: Dr. Joanna Mott  CS 246  X6024  Joanna.mott@tamucc.edu  
              Dr. Stella Doyungan  ST 308  X3686  Stella.doyungan@tamucc.edu

CS Building/ Lab Safety Coordinator: Mr. Steve Dial
Microbiology/Biomedical Lab Coordinator
       Ms. G. Brooke Stanford  CS 253  brooke.stanford@tamucc.edu

Teaching Assistants: Lab sections all in CS233.
As of the writing of this syllabus in July 2010 to comply with Texas HB 2504, TAs have not yet been assigned.

Note: As of the writing of this syllabus in July 2010 to comply with Texas HB 2504, lab are most likely expected to start the week of August 30; please come prepared with Lab Safety quiz printed out; lab coat; closed-toe shoes, long pants.

Tutor: TBA

Supplemental Instructor: TBA

REQUIRED UNIVERSITY POLICIES
Students with Disabilities and Veterans: All programs in Life Sciences (LSCI) comply with the federal Americans with Disabilities Act (ADA) of 1990, including the ADA Amendments from 2008 (PL 110-325). This anti-discrimination statute provides civil rights protection for persons with disabilities. This statute requires that all qualified students with disabilities be guaranteed a learning environment that provides reasonable accommodations of their disabilities. This act also includes returning veterans who may be experiencing cognitive, emotional and/or physical access issues in the classroom or on campus. If you are a returning veteran or you suspect that you may have a disability requiring accommodation, please contact the Office of Disability Services (located in
Driftwood 101) at (361) 825-5816. Please contact this office in a timely manner, as they must review requests and prepare accommodations and send the accommodation letters.

If you need disability accommodations in this class, please contact the instructor as soon as possible. If you have mobility problems, are pregnant, or you may have a history of seizures, please notify the instructor privately so that assistance can be given in case of fire drills or emergencies. Please have your Faculty Notification Letter from the Disabilities Service Office when you talk with Dr. BucK.

**Grade Appeals:** As stated in the Texas A&M University-Corpus Christi University Rules and Procedures (Section B [Academic Program], Part 13 [Students]: 13.02.99.C2 [Student Grade Appeals] and 13.02.99C2.01 [Student Grade Appeal Procedures]), any 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 on 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, consult the University Rules and Procedures specified above (accessible through the University Rules and Procedures website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html)). For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

**Academic Advising:** The College of Science and Technology 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. The College's Academic Advising Center is located in Center for Instruction--Suite 350, and can be reached at 825-6094.

**CLASS POLICIES**

**Attendance:** Students are expected to attend every scheduled class and laboratory meeting. **It is the responsibility of the student to obtain any material missed during an absence from his/her classmates. Power Points are not placed in the library, nor on a website.** For labs, the instructor (TA) should be notified PRIOR to lab if the student will be absent (except in emergency situations). Students must attend the laboratory section for which they originally registered. “Make-up” by attending other lab sections is NOT permitted except in emergencies, only with a signed green permission slip from either Dr. Buck, Dr. Mott, or Dr. Doyungan & depending upon space in the laboratory section.

**Academic Integrity:** TAMUCC academic policies are in force, including standards for academic integrity & honesty, plagiarism, grammar and spelling. All policies are described in the TAMUCC catalogue and the Code of Conduct in the Student Handbook. DO NOT SHARE WRITTEN INFORMATION BETWEEN PARTNERS ON LAB REPORTS, AND PLACE THIS IN YOUR LAB NOTEBOOKS! THIS IS PLAGIARISM, AND YOUR TA WILL AWARD ALL OFFENDING PARTIES A
ZERO ON THE ASSIGNMENT! We also have to report all instances of cheating to the Dean of Students office on an Academic Misconduct form.

Citation format: Please use Council of Science Editors format. If you don’t know this, ask someone in Pro Skills!

Professional Courtesy: DO NOT USE CAMERA PHONES IN LECTURE OR LAB. DO NOT SEND TEXT MESSAGES DURING CLASS. Please turn off all cell phones, beepers, Bluetooth devices, Palm Pilots, Black Berrys, etc., before entering the classroom or laboratory, or at least place them on silent mode. Please place these in the lockers outside CS 233 (locks not provided). I would prefer that earpieces not be worn in lecture or laboratory. Recording of lectures with tape recorders can only be done with permission of instructor. Please refrain from eating in class; if you must eat for medical reasons, please see me privately.

List-serve: All students must subscribe to the class list serve, and to a second list serve. To subscribe, send a separate e-mail to each of the following addresses: biol2421-list-request@sci.tamucc.edu and opportunities-list-request@sci.tamucc.edu. Make sure that your e-mail appears in the “From” heading. In the subject heading, type “subscribe,” then send the e-mail. Next, you will receive a second message with a long set of letters and numbers in the subject line. You must also reply to that message in order to be subscribed to the list-serve.

After the initial message to subscribe, to send items on the list-serve, just type biol2421-list@sci.tamucc.edu (do NOT add –request after list). You may not receive the messages from the list-serve if your Internet service provider (Yahoo, Hotmail, Excite, Roadrunner, Grande, etc.) keep these messages from being placed in junk-mail. The University administration prefers that you use the islander.tamu.edu accounts.

At the end of the course, send an e-mail that contains your e-mail address in the “From” heading to biol2421-list-request@sci.tamu.edu. In the subject heading, type the word “unsubscribe,” then send the e-mail. I hope that students will continue to subscribe to opportunities-list@sci.tamu.edu!

Dropping courses: I hope that students do not find it necessary to drop this class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. You as adults have to be the final judge of your action whether to drop or not. For students applying to professional or graduate school, you will have to explain why you dropped this class or any other class. Receiving a “W” is NOT automatic; you must initiate the paperwork in the Student Services Center (the “Round Building”). Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class.

Deadline to drop course with a “W” grade: F Nov 5
Deadline to withdraw from University for the fall term: M Dec 6
GRADED ACTIVITIES—Evaluation
Lecture—Three written exams will mostly consist of multiple-choice (Type K), but may also include a mixture of these plus short answer, essay, multiple choice, multiple-choice matching, descriptive T/F PLUS a **cumulative final exam**
Grading scale: A≥90%  B=80-89.9%  C=70-79.9%  D=60-69%  F<60%
Lecture
3 class exams @ 100 pts. each = 300 pts max
Cumulative final exam = 200 pts
**Extra credit assignments** ~30 pts.—To be announced
(given at prerogative of instructor)  Lecture is 66.7% of total grade

Lab—Lab notebook (20% of total grade)
   Lab tests (5% of total grade)
   Pop quizzes (3% of total grade)
   Instructor (TA) evaluation (5% of total grade)
**Lab is 33.3% of total grade**

Missed exams—Excused only per TAMU-CC guidelines; such exams are given only under EXTREME circumstances, and will be total essay. The last day for make-up exams will be M Dec 6, but I would prefer that make-ups be done sooner—please schedule with instructor.
**Missed extra credit opportunities**—Instructor is not obligated to give make-up assignments for extra credit opportunities, whether excused or unexcused. The ONLY possible exception is for students with a university-approved scheduled absence. The make-up (if given) may not be the exact same assignment given to the class.

Test Dates: Exam 1—F Oct 1; Exam 2—F Oct 29; Exam 3—M Nov 22
Please note that there is an exam on the Monday before Thanksgiving; DO NOT SCHEDULE your departure on this day!!!
Final—M Dec 13 (11 am-1:30 pm)—NOTE CHANGE OF TIME

**N.B:** You will have a Lab Practical Exam, lab poster presentations, and either pop quizzes or extra credit assignments during the Dead Week (final week of classes, M T Dec 6-7).

**LAB SAFETY BRIEFINGS:** You must either do either a Lab Safety Briefing (SMTE 0091) on-line or in-person to be admitted into your lab; failure to attend will result in your dismissal from the lab.

**ADDITIONAL INFORMATION OF INTEREST**
Web sites involving microbiology (if you use them for laboratory reports, please cite them, and add date accessed using Council of Science Editors format):
Text websites: www.mhhe.com/nester5 or www.mhhe.com/nester6 (both accessed 07/11/10). The Online Learning Center for Nester is very good; it is not mandatory, but some students have said it has helped them. I do NOT use ARIS™ as an assessment system.
Microbiology Online: http://pathmicro.med.sc.edu/book/welcome.htm (accessed 07/11/10) --Online text from Med. Univ. of South Carolina. It is intended for 2nd-yr. med students, and may be more advanced for this class. The Spanish edition is maintained by the Instituto Polytecnico Nacional (http://pathmicro.med.sc.edu/Spanish/bact-span.htm) (11 julio 2010).

Cells Alive: www.cellsalive.com/howbig.htm (accessed 01/09/10) -- great for grades 6-12; some introductory college material, but a bit elementary for this class

Microbes info: www.microbes.info/ (accessed 01/09/10)—Excellent site for this class & level


CDC: www.cdc.gov (accessed 07/09/10)

Pasteur Institute (In French; click the top right corner button for English): www.pasteur.fr (visualized 10 jullet 2010); Lo siento, no se puede haz clic por los sitios en español


Tentative Lecture Schedule BIOL 2421.001 FALL 2010

Caveat: The syllabus is a general guide; deviations may be necessary. Responsibility to keep up with the changes in the syllabus lies with the student!

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture #</th>
<th>Date</th>
<th>Topic</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>W Aug 25</td>
<td>Intro. to Microbiol. I</td>
<td>Ch. 1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>F Aug 27</td>
<td>Intro. to Micro II</td>
<td>Ch. 1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>M Mon Aug 30</td>
<td>Intro to Micro III</td>
<td>Ch. 1</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>W Sep 1</td>
<td>Microbial structure I</td>
<td>Ch. 3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>F Sep 3</td>
<td>Microbial structure II</td>
<td>Ch. 3</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>M Sep 6</td>
<td>Labor Day—no class</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>W Sep 8</td>
<td>Microbial structure III</td>
<td>Ch. 3</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>F Sep 9</td>
<td>Microbial structure IV</td>
<td>Ch. 3</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>M Sep 13</td>
<td>Metabolism I</td>
<td>Ch. 6</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>W Sep 15</td>
<td>Metabolism II</td>
<td>Ch. 6</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>F Sep 17</td>
<td>Metabolism III</td>
<td>Ch. 6</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>M Sep 20</td>
<td>Metabolism IV</td>
<td>Ch. 6</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>W Sep 22</td>
<td>Growth of Microbes I</td>
<td>Ch. 4</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>F Sep 24</td>
<td>Growth of Microbes II</td>
<td>Ch. 4</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>M Sep 27</td>
<td>Growth of Microbes III</td>
<td>Ch. 4</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>W Sep 29</td>
<td>Growth of Microbes IV</td>
<td>Ch. 4</td>
</tr>
<tr>
<td>Week</td>
<td>Lecture #</td>
<td>Date</td>
<td>Topic</td>
<td>Reading Assignment</td>
</tr>
<tr>
<td>------</td>
<td>-----------</td>
<td>----------</td>
<td>------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>16</td>
<td>17</td>
<td>W Oct 6</td>
<td>Control of Microbes II</td>
<td>Ch. 5</td>
</tr>
<tr>
<td>17</td>
<td>18</td>
<td>F Oct 8</td>
<td>Control of Microbes III</td>
<td>Ch. 5</td>
</tr>
<tr>
<td>18</td>
<td>19</td>
<td>M Oct 11</td>
<td>Genetics I: Central Dogma</td>
<td>Ch. 7, 8</td>
</tr>
<tr>
<td>8</td>
<td>20</td>
<td>W Oct 13</td>
<td>Genetics II: Central Dogma</td>
<td>Ch. 7, 8</td>
</tr>
<tr>
<td>21</td>
<td>22</td>
<td>M Oct 18</td>
<td>Genetics III: Gene Transfer</td>
<td>Ch. 7, 8</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>M Oct 25</td>
<td>Genetics IV: Biotech.</td>
<td>Ch. 8, 9</td>
</tr>
<tr>
<td>9</td>
<td>24</td>
<td>W Oct 20</td>
<td>Genetics V: Methods</td>
<td>Ch. 8, 9</td>
</tr>
<tr>
<td>24</td>
<td>25</td>
<td>F Oct 22</td>
<td>Antimicrobials I</td>
<td>Ch. 21</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>M Oct 25</td>
<td>Antimicrobials II</td>
<td>Ch. 21</td>
</tr>
<tr>
<td>10</td>
<td>26</td>
<td>W Oct 27</td>
<td>Prokaryotic Divers. I</td>
<td>Ch. 10, 11</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>F Oct 29</td>
<td>Exam II</td>
<td>Lec 15-25</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>M Nov 1</td>
<td>Prokaryotic Divers. II</td>
<td>Ch. 10, 11</td>
</tr>
<tr>
<td>11</td>
<td>28</td>
<td>W Nov 3</td>
<td>Prokaryotic Divers. III</td>
<td>Ch. 10, 11</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>F Nov 5</td>
<td>Prokaryotic Divers. IV</td>
<td>Ch. 10, 11</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>M Nov 8</td>
<td>Prokaryotic Divers. V</td>
<td>Ch. 10, 11</td>
</tr>
<tr>
<td>12</td>
<td>31</td>
<td>W Nov 10*</td>
<td>Fungi &amp; Molds I</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>F Nov 12*</td>
<td>Fungi &amp; Molds II</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>33</td>
<td>M Nov 15</td>
<td>Prostists &amp; Algae I</td>
<td>Ch. 12</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>34</td>
<td>W Nov 17</td>
<td>Prostists &amp; Algae II</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>F Nov 19</td>
<td>Immune Responses</td>
<td>Ch. 15, 16</td>
</tr>
<tr>
<td>36</td>
<td>M Nov 22</td>
<td>Exam III</td>
<td>Lec 26-35</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>W Nov 24</td>
<td>No class; Happy Thanksgiving</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>M Nov 29</td>
<td>Microbial Ecology I</td>
<td>Ch. 30</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>W Dec 1</td>
<td>Microbial Ecology II</td>
<td>Ch. 30</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>F Dec 3</td>
<td>Microbial Ecology III</td>
<td>Ch. 30</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>M Dec 6</td>
<td>HIV</td>
<td>Ch. 29</td>
<td></td>
</tr>
</tbody>
</table>

16  41  M Dec 13  11 am -1:30 pm
Comprehensive Final Exam
Note the time change!!