SECTIONS TAUGHT
BIOL 2421.C01    M/W   11:00 AM – 12:15 PM, B322
*BIOL 2421.C02    T/Th  8:30 – 9:45 AM, E215

COURSE DESCRIPTION
Classification, cell structure, metabolism, and historical concepts of microorganisms including bacteria, viruses, fungi, protozoa, *Chlamydia* and *Rickettsia*. Infectious diseases and immunology will be emphasized. Practical microbiology will include diagnostic microbiology of water, food, sewage, soil, and industrial applications. Laboratory methods are stressed, and experimentation with pure cultures of medical, environmental, and industrial importance is used extensively. Lab required. Prerequisite: BIOL 2402 within the last five years

COURSE CREDIT HOURS: 4 (LECTURE: 3, LAB: 4)

PRE-REQUISITE COURSE:  BIOL 2402 with a minimum grade of “C” within the last 5 years or consent of department chair

CO-REQUISITE COURSE:  Microbiology Laboratory

COURSE DELIVERY METHOD:  Lecture

TEXTBOOK
Microbiology by Robert Bauman, 2nd Edition (required)  A copy of the textbook is on reserve in the Collin libraries.

SUPPLIES:  none

MEASUREABLE STUDENT LEARNING OUTCOMES
Upon completion of this course, the students should be able to do the following:
1. Describe the distinctive characteristics of prokaryotic cells, and the diverse growth requirements of prokaryotic organisms.
2. Explain different ways that microbial growth can be controlled, and define the importance of selective toxicity in terms of treating infectious diseases.
3. Explain the unique characteristics of bacterial metabolism and bacterial genetics, and discuss how antibiotic resistance and virulence mechanisms evolve in bacteria.
4. Compare the characteristics and reproduction of acellular infectious agents (viruses and prions) with cellular infectious agents (bacteria, protozoa, and fungi)
5. Describe the function of host defenses and the immune system in combating infectious diseases, and explain how immunizations protect against specific diseases.
6. Explain the transmission and virulence mechanisms of cellular and acellular infectious agents, including key microbes such as HIV, Influenza A, *Staphylococcus aureus*, and *Mycobacterium tuberculosis*.

COURSE REQUIREMENTS
Exams:  Five exams will be given during the semester, including a non-cumulative final exam.  All exams will be given during class, and will contain a mix of multiple choice, matching, true/false, and/or short answer questions.  Students will need to bring a Scantron to class on test days.  Study guides will be posted on Blackboard prior to each exam.  Graded exams will be returned in class for a brief review.  Thereafter, exams will kept on file in the instructor’s office and will be available for review during scheduled office hours.

Group project:  A group project will be assigned during the latter half of the semester, and will entail both a written report and an oral presentation on a bacterial pathogen of your choosing.
**Homework and Class Assignments:** Homework and class assignments will be comprised of both group and individual exercises including case studies, crossword puzzles, anticipation guides, concept circles, and other activities.

**Bonus Points:** Bonus point opportunities will be made available to students at various times throughout the semester, including classroom “Current Events” discussions and attendance at specific seminars and events.

**GRADING SCALE:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>59 and below</td>
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</tbody>
</table>

Grades for the lecture portion of the course will be calculated as follows:

- Lecture Exams (5) 80%
- Group Project 10%
- Homework/Class assignments 10%

**OVERALL GRADE:**

The lecture grade with be integrated with your laboratory grade to determine the final grade for the course (65% lecture and 35% lab).

**TENTATIVE TEST SCHEDULE:**

<table>
<thead>
<tr>
<th>Exam</th>
<th>Date</th>
<th>Chapters Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1</td>
<td>Tuesday, February 9</td>
<td>Ch. 3, 5, 6, 7</td>
</tr>
<tr>
<td>Exam 2</td>
<td>Thursday, February 25</td>
<td>Ch. 9, 10, 13</td>
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<tr>
<td>Exam 3</td>
<td>Tuesday, March 30</td>
<td>Ch. 14, 15, 16, 17</td>
</tr>
<tr>
<td>Exam 4</td>
<td>Tuesday, April 22</td>
<td>Ch. 19, 20, 21</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Thursday, May 13</td>
<td>Ch. 13, 24, 25</td>
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</tbody>
</table>

**METHOD OF PRESENTATION:**

Lectures will be structured around information presented in the required text, and may be supplemented with information from outside sources. Lecture outlines will be made available to students on Blackboard. Lectures will be augmented with class activities, animations, outside speakers, group discussions, videos, and other alternate learning methods, with an emphasis on critical thinking and applied knowledge. Students may audio record classroom lectures with my permission, but video recording is strictly prohibited.

**ATTENDANCE** is mandatory in this course. **ABSENCES** will be excused only if documentation of an instructor-approved excuse is provided. It is your responsibility to provide such documentation upon your return to class, and to confer with the professor regarding make-up assignments. Students will not be allowed to make up assignments missed due to unexcused absences. If you do not drop in accordance with the CCCC Academic Calendar, a grade of “F” will be assigned. Religious Holidays: refer to the current CCCCD Student Handbook. **The last day to withdraw is 3/12/10.**

**STUDENT CONDUCT**

The college expects students to conduct themselves in class in such a way as to not interfere with or disrupt the educational process. Students are to speak and act in a respectful manner toward their fellow students and the professor. Those who participate in inappropriate behavior such as, excessive talking, cell phone use (including texting), verbal altercations, or blatantly disregarding instructor’s directions will be asked to leave the class. Continuance of such behavior will result in a referral to the Dean of Students for disciplinary action.

**CLASSROOM ETIQUETTE**

*Cell phones and other telecommunication devices should be turned off or silenced during class.*

- NO texting, surfing, IMing, tweeting, e-mailing, etc. during class!

*Students should not talk to each other while the instructor or another student is speaking.*

- Once an instructor addresses the class, whether to teach or to respond to a question, students should cease all chatter. Individual conversations between students during class are rude and disruptive, and will not be tolerated.

*Students should make every effort to be ON TIME, and remain in class for the entire class period.*

- Students who are late should take a seat close to the door to avoid disrupting the entire class.
LATERAL TRANSFERS
Lateral transfers will not be granted after the 4th week of class or after the first lecture exam, which ever comes first. Exceptions to this are for documented changes in work schedule and family emergencies. If a student does transfer to another section, all previous grades will accompany the student. However, the new instructor can require the student to retake any exam or quiz. For questions concerning lateral transfers, contact the Biology Department Chair.

COLLEGE REPEAT POLICY
You may repeat this course only once after receiving a grade, including W.

WITHDRAWAL POLICY
Texas Education Code 51.907 Course Drop Limit Provisions
Students who enroll as an entering freshman or a first-time college student in undergraduate courses at any Texas public community college, technical college, health sciences institution, or any public university offering undergraduate courses must comply with the legislation of TEC51.907. TEC51.907 states that students who enroll for the first time during the fall 2007 semester or any subsequent semester are subject to the course drop limit of six course drops. This includes any course a transfer student has dropped at another institution. Collin College did not begin to count dropped courses until the fall 2008 semester. For more information go to http://www.ccccd.edu/aro/withdrawal.htm.

AMERICAN DISABILITIES ACT STATEMENT
It is the policy of Collin County Community College to provide reasonable and appropriate accommodations for individuals with documented disabilities. This college will adhere to all applicable Federal and State laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to contact the ACCESS office (SCC G200, 972-881-5898, V/TDD 972-881-5950) in a timely manner if he/she desires to arrange for appropriate accommodations.

ACADEMIC ETHICS
The College District may initiate disciplinary proceedings against a student accused of scholastic dishonesty. Scholastic dishonesty includes, but is not limited to statements, acts, or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work material that is not one’s own. Scholastic dishonesty may involve, but is not limited to, one (1) or more of the following acts: cheating, plagiarism, collusion, use of annotated texts or teacher’s editions, and/or falsifying academic records.

Plagiarism is the use of an author’s words or ideas as if they were one’s own without giving credit to the source, including, but not limited to, failure to acknowledge a direct quotation.

Cheating is the willful giving or receiving of information in an unauthorized manner during an examination, illicitly obtaining examination questions in advance, copying computer or Internet files, using someone else’s work for assignments as if it were one’s own, or any other dishonest means of attempting to fulfill the requirements of a course.

Collusion is intentionally or unintentionally aiding or attempting to aid another in an act of scholastic dishonesty, including but not limited to, failing to secure academic work, providing a paper or project to another student; providing an inappropriate level of assistance; communicating answers to a classmate about an examination or any other course assignment; removing tests or answer sheets from a test site, and allowing a classmate to copy answers. In accordance with college guidelines, students suspected of academic dishonesty will be referred to the Dean of Students for an investigation. Students found guilty of scholastic dishonesty will receive an authorized disciplinary penalty from the Dean of Students Office as well as an academic penalty in the course. For more information, contact the Dean of Students for the student disciplinary process and procedures or consult the CCCCD Student Handbook.

FERPA COMPLIANCE
Student performance cannot be discussed with anyone other than the student, unless written permission is provided by the student. Student information can not be given to students over the phone or via non-secure e-mail addresses. Students may use their cougarmail e-mail address, provided by the college to all students, to communicate with the professor about grades and other sensitive information.

CHANGES TO SYLLABUS
The instructor reserves the right to alter the syllabus as needed at any time during the semester. Changes to the syllabus will be provided to the students in writing.
DR. CAIN’S TIPS FOR SUCCESS

*Ask if you have any questions!

*Own the material, don’t just rent it.

*Know the difference between memorizing and learning, and work on learning the material and being able to apply what you have learned.

*Utilize study groups—students consistently demonstrate better learning outcomes when they learn in groups.

*Work on the study guides as we cover each chapter – don’t wait until right before the exam to start studying.

*Use a variety of learning strategies – you will learn the material better if you approach it several different ways.

*Take advantage of the services that Collin College offers – advising, counseling, librarians, writing center, etc.

*Have fun!

FREQUENTLY ASKED QUESTIONS:

What should we call you?
“Doctor Cain” or “Professor Cain”.

What kinds of course materials are posted on Blackboard?
You’ll find lots of helpful study tools on Blackboard -- Powerpoint slides, study guides, homework assignments, animation links, review games, crossword puzzles, etc. I also post announcements and reminders on Blackboard, so plan to check it daily. All grades will be posted on Blackboard as well.

If I memorize the words on the Powerpoint slides, is that enough for the tests?
Absolutely not! The Powerpoint slides are an outline only. You will still need to take notes during class as we explore the material in more depth.

Do you have review sessions for each exam?
Yes, we will have a review session prior to each exam outside of regular class time. Generally, if the test is on Tuesday, the review session will be the Friday before the test; if the test is on a Thursday, the review session will be the Tuesday before the test.

If I can’t attend the exam review sessions, will it hurt me?
No. The review sessions are a time for students to ask questions about material they’ve been studying for the test. I do not cover anything that hasn’t already been covered in class.

Can I e-mail you if I have questions while I’m studying?
Please do! I check e-mail regularly during the workday, and periodically on evenings and weekends (especially right before a test). I don’t check my Blackboard mail as often, so if you need a quick response, use dcain@collin.edu.

I do all of the study guides before each test, and I’m still not doing very well. What am I doing wrong?
Focus more on ACTIVE learning. If you’re just writing out the answers to the study guides and then reading over them while you’re studying, then it’s not enough. You need to be able to answer those study guide questions without looking at your notes!

Can the bonus points really make a difference in my grade?
Yes, yes, yes! I had two students last semester that were borderline between a B and an A, and neither turned in any bonus assignments. If they had, it would have given both of them an A.

What should we do in the event of a class cancellation?
If the College is closed due to inclement weather, students will be notified via CougarAlert, and an announcement will be posted on the Collin College home page. If I have to cancel class due to emergency or illness, I will post an announcement on Blackboard, and signs will be posted on the classroom door. In ANY event of a class cancellation, be sure to check Blackboard for further instructions!
<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPICS</th>
<th>CHAPTERS COVERED</th>
</tr>
</thead>
</table>
| 1    | M: Course Introduction and Overview  
      W: Prokaryotic Cell Structure & Classification | --  
      3 (pp. 56-77)  
      11 (pp. 316-319) |
| 2    | Microbial Metabolism  
      Microbial Growth & Culture Methods | 5 (pp. 124-147)  
      6 |
| 3    | Microbial Genetics | 7 |
| 4    | **T: Exam I (February 9)**  
      Physical & Chemical Control of Microorganisms | **Ch 3-7**  
      9 |
|      | **R: Exam II (February 25)** | **Ch 9,10,13** |
| 5    | Antibiotics | 10 |
| 6    | Introduction to the Viruses  
      **R: Exam II (February 25)** | 13 (pp. 378-389)  
      **Ch 9,10,13** |
| 7    | Epidemiology | 14 |
| 8**  | Host Defense: Innate Immunity  
      Host Defense: Acquired Immunity | 15  
      16 |
|      | Spring Break: March 15 - 19 | |
| 9    | Host Defense: Acquired Immunity  
      Vaccines | 16  
      17 (pp. 485-493) |
| 10   | **T: Exam III (March 30)**  
      Gram-Positive Infectious Diseases | **Ch 14-17**  
      19 |
| 11   | Gram-Positive Infectious Diseases  
      Gram-Negative Infectious Diseases | 19  
      20 |
| 12   | **T: Group Presentations**  
      **R: Finish Group Presentations**  
      Gram negative infectious diseases | 20/21  
      **Bacterial Diseases** |
| 13   | More bacterial infectious diseases  
      **R: Exam IV (April 22)** | 20-21  
      **Bacterial Diseases** |
| 14   | Viruses & Prions  
      DNA Virus Infectious Diseases | 13 (p. 390-401)  
      24 |
| 15   | RNA Virus Infectious Diseases  
      Bioterrorism | 25  
      26 (pp. 772-776) & video |
| 16   | **R: Exam V (May 13)** | **Viruses & Prions, Viral Diseases, Bioterrorism** |

**Last day to withdraw March 12, 2010**