BSc 597 – Microbial Ecology
Syllabus (Summer II 2012)

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Phone: 903-886-5221
Email: dongwon.choi@tamuc.edu (preferred)

Office Hours: 10-12, MWF for visiting my office
email & eCollege anytime (no immediate responses guaranteed)

University Statements

Academic integrity: As members of Texas A&M University-Commerce academic community, we all are responsible to uphold the principles of academic integrity expressed by this community. We are expected to watch these principles to be kept and appreciated by others.

- The first instance of cheating will result in an automatic Zero on the exam. A second instance will result in Zero course grade (automatic F).
- Plagiarism is a serious academic violation. You must cite all sources of information with properly accredited citations. Copying material, whether in parts or whole, will result in a grade of Zero for your term paper and can lead to further University disciplinary consequences.

Accommodations: The American with Disability Act (ADA) is a federal anti-discrimination statue that provides comprehensive civil rights protection for persons with disabilities. Among other aspects, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have disability requiring accommodation, please contact:
Office of Student Disability Resources or Services
Texas A&M University-Commerce
Gee Library, Room 132
Tel) 903-886-5150, 903-886-5835
Fax) 903-468-8148
Email) StudentDisabilityService@tamu-commerce.edu

Access to student work: Copies or your work in this course including copies of any submitted papers and your portfolios may be kept on file storage for institutional research, assessment, and accreditation purposes. All work used for these purposes will remain anonymous.
**Course Description**

BSc 597, Microbial Ecology, is a course for Biological and Environmental Sciences graduate students designed to provide in-depth understanding of the interrelationship between microorganisms and their living(biotic) and nonliving(abiotic) environments. The term “microbial ecology” came into frequent use only in the early 1960s. The development of microbial ecology represented a holistic approach to environmental quality that recognized the importance of all living organisms, including microorganisms, in maintaining ecological balance. The current popularity of microbial ecology and the rapid development of this field are reflective of public interest in ecology and the scientific recognition of the essential roles of microorganisms in ecosystems.

**REQUIRED Textbook:**

**Prerequisite:** Introductory Biology (microbiology or equivalents are not required but strongly recommended)

**Student learning outcomes**

Upon completion of this course, you should be able to;

1) Gain an appreciation for and understanding of the ecology of microorganisms
2) Explain the ways microorganisms interact with biotic environments such as other microorganisms, plants, and animals.
3) Explain the ways microorganisms interact with abiotic environments
4) Explain how and why microbial ecology is an integral of the science of microbiology.
5) Recognize and provide detailed examples of the complexity of microbial catabolism that is common to all life.
6) Comprehend how humankind may be able to manage the limited resources of “Spaceship Earth” in a wise and sustainable fashion.

**On-line Class Policy**

This is a “web-based” course - you don’t actually attend lecture classes. Instead, all class activities will be held in eCollege enters through MyLeo page. Check the website frequently (daily!!!) for announcements, instructions, and discussions. Try navigating the site early so you know that you can access everything. If you have difficulties with any material, talk to me immediately.

It is VERY important to keep in mind that this is a Summer course that we are packing the same material that would be covered in 15 weeks of a regular term semester in to a 4 and ½ week period. Therefore, it is VERY important to keep up
with the material (if you fall behind, there isn't much time to catch up!!!)

- For successful course completion, your participation is essential. Your attendance grade will be determined by your timely login to the course shell (minimum once a day).
- Students should check lecture material, assignments, and tests on regular basis. Yes, this course is mainly self-paced. However, it is strongly recommended that you schedule your specific work time that works best for you. Don’t forget that the websites is active 24/7 during Summer II (July 9 – Aug 9, 2012)
- The material for this class will be organized around content blocks. Students are expected to read the assigned textbook material and lecture notes and comply with given due dates for the assignments
- Exams access will be available only during the pre-announced period of time. After this given period, you will not be able to have an access to that exam.

**Technology Requirements**

This course is web-based, and will therefore be administered via eCollege (see “ACCESS AND NAVIGATION). All course announcements, which mainly include news about assignments, are posted through eCollege (usually via email). In addition to reading the announcements (my emails), you will be uploading your assignments to the Dropbox. As grades are updated, I update the Gradebook. Thus, the three major components used in eCollege are Announcements, Dropbox, and Gradebook. The following information has been provided to assist you in preparing to use technology successfully in this course.

- Internet access/connection – high speed recommended (not dial-up)
- Word Processor (Microsoft Word, OpenOffice Writer, et cetera) and Slide Program (Microsoft Power Point, OpenOffice Impress, et cetera)

Our campus is optimized to work in a Microsoft Windows environment. This means our courses work best if you are using a Windows operating system (XP or newer) and a recent version of Microsoft Internet Explorer (6.0, 7.0, 8.0, or 9.0). Your courses will also work with Macintosh OS X and most Linux distributions. To launch a browser test within any operating system, login in to eCollege, click on the „myCourses” tab, and then select the “Browser Test” link under Support Services.

**Access and Navigation**

**eCollege Access and Log in Information**

This course will be facilitated using eCollege, the Learning Management System used by Texas A&M University-Commerce. To get started with the course, go to: https://leo.tamu-commerce.edu/login.aspx.

You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamu-commerce.edu.
Getting Started

Be sure to explore the class site at eCollege. Use the first couple of days to become familiar with the class site. Remember that this is a GRADUATE level course, and therefore you will be expected to show appropriate levels of effort. You will be expected to take part in discussions in a mature and in-depth manner, to write in a clear and professional voice and you should not need excessive amount of instructor's hand-holding.

Grading Policy

<table>
<thead>
<tr>
<th>Grading Policy</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term paper (see details on next page)</td>
<td>150 points</td>
</tr>
<tr>
<td>(50 pts. Topic selection &amp; white paper + 100 pts. Term paper)</td>
<td></td>
</tr>
<tr>
<td>5 Weekly assignments (50 pts. each)</td>
<td>250 points</td>
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<tr>
<td>(Discussion summary)</td>
<td></td>
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<tr>
<td>4 lecture exams (100 pts. each)</td>
<td>400 points</td>
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<tr>
<td>Participation (your participation in discussions)</td>
<td>100 points</td>
</tr>
<tr>
<td>(10pts. + 10pts./week)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>900 points</td>
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</tbody>
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Grading Scale

The final course grade will be assigned based on the following break-down;

<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>
</tr>
<tr>
<td>D</td>
<td>60 – 69%</td>
</tr>
<tr>
<td>F</td>
<td>59% and below</td>
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</tbody>
</table>

Teaching Methodology

Web-based Course This course is partially self-paced. Therefore, it is VERY important to keep up with the material (if you fall behind, there isn’t much time to catch up!!!). Students are strongly encouraged to print lecture slides and use them as study guide. Periodically check (daily!!) course homepage as well as your email for course announcements.

Weekly discussion summaries 3-4 chapters will be covered each week and students will be asked to write discussion a summary for your chosen topic by the end of each week (due: 11:00 PM, Saturday of each week). The topic summary should include information found in all three categories: 1) the original answer, 2) classmates’ feedback/comment on the answer, 3) instructor’s feedback/comment on the answer. The summary has to be your own writing; you cannot just copy and paste answers and feedbacks/comments. The weekly assignment needs to be prepared as MS word document and uploaded to the corresponding “DropBox”. Misplaced assignments will not be graded.

Participation Students will be asked to write discussions in response to the instructor-provided questions related to main theme of each chapter (10 pts/week); each chapter will have six topic questions and you have to choose and answer one topic question. The discussion topic selection will be “first-come first-serve” basis. You have to answer an answer-free topic question by the end of Thursday of each week. You are also expected to
comment/feedback on each of your classmates' original answers for the discussion topics by the end of Friday of each week to earn full participation points (10 pts/week).

Term paper Write a review paper on one of the current research topics related to microbial ecology. Topic selection and white paper is due by July 15, and the paper is due by Aug 8. Both white paper and term paper need to be prepared in MS word (.doc or .docx) and uploaded to the corresponding “dropbox”. Misplaced assignments will not be graded.

- **Contents of the paper:** Discuss a focused “hot topic”, with sufficient discussion of background information to allow anyone taking the class to understand the significance. Research approaches and future directions should also be briefly discussed. The length of the paper is minimum 8 pages of double spaced text (font size no bigger than 12). You can provide figures. Write with your classmates as the targeted readers. You should not “reuse” a topic used for other courses.

- **Sources and their use:** In recent years there has been a tendency to rely more heavily on web pages as sources. Students are warned that plagiarizing any source is a serious violation of academic standards—credit and use your sources properly. A definition of plagiarism can be found in the section of University Statement. **Note:** I allow the use of some figures downloaded from the web, but you should cite the reference or give the website. Figure legends should be your own with succinct and clear information.

- **Style:** Papers will be judged on their organization and the clarity of writing. Papers that have numerous misspellings or grammatical errors will be rated poorly and this rating will seriously impact the grade. Proofread carefully. Use spelling checkers. Have others read the paper both for clarity and content. The paper should follow a review paper writing style with citation systems of either Citation-Sequence or Name-Year.

- **Categories of term paper topics you can choose from;**
  - Ecological aspects of Bio-deterioration control
  - Microbial interactions with xenobiotics or inorganic pollutants
  - Microorganisms in bioenergy production
  - Microorganisms in mineral recovery
  - Microbial control of pests or disease-causing population

Student may further develop and use a specific sub-topic from each category. You have to provide 1-page white paper of your term paper outline along with minimum 3 references (full-text scientific research papers in PDF format) covering your term paper topic (Due: Sunday, July 15).

**Exams** There will be 4 exams. Exams are “take-home” style and are accessible for the duration of 1hr at a given date (unless otherwise announced, the exam date will be Friday of each week). The exams will consist of multiple choices, short answer questions, and assay-type questions. Assay-type questions will ask bigger picture of class lecture topics. One example of such question would be “Describe the global carbon cycle (give as much detail as possible)”.

**Makeup** Since there are no actual class meetings or sit-down exam periods, there isn’t any necessity for “make-up”. All work will have a due date posted. Assignments may be accepted late, but will be penalized heavily on an increasing scale (the later it is, the more point it loses). Please contact me immediately if you are “absent/inactive” long enough to miss any due dates. However, I STRONGLY RECOMMEN planning ahead to avoid such problems. Extreme circumstances will always be taken into consideration; talk to me.
before you assume anything.

*Class Schedule*

**Week 1**
- Chapter 1-3
- Exam I
- Topic selection & White paper Due (Midnight, July 15)

**Week 2**
- Chapter 4-6
- Exam II

**Week 3**
- Chapter 7, 9, 11
- Exam III

**Week 4**
- Chapter 12-13
- Exam IV

**Week 5**
- Chapter 14
- Term paper due (Midnight, Aug 8)

*All dates and assignments are tentative and subject to change.*