**BIOLOGY 3380: Introductory Microbiology**
**Syllabus – Fall, 2011**

**Lecture: MWF 9:05am-9:55am, 205 Instructional Center—Attendance required**

**Instructors:**
**Joel E. Kostka, Ph.D.,** School of Biology
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**Teaching Assistant:**
Velcho Nanchev, nvelcho3@gatech.edu; Office hours: TBA.

**Course description:** This course provides an in-depth overview of microbes and the interactions of microbes with ecosystems. Specific topics will include microbial structure/function, diversity, physiology, metabolism, genetics, ecology, evolution and pathogenesis. The course format will consist of interactive lectures, which will draw on information from the textbook and the latest scientific discoveries in the field of microbiology.

**Textbook and TurningPoint "Clicker":**
Brock Biology of Microorganisms, 13th Edition
Michael T. Madigan, John M. Martinko, David A. Stahl, and David P. Clark.
ISBN-10: 032164963X
ISBN-13: 9780321649638
Publisher: Pearson- Benjamin Cummings
Copyright: 2012

Additional reading material will be announced and added to the course website on T-square.

The new radio-frequency TurningPoint response or "clicker" system is also required for the course.

**Prerequisites** (all require a minimum grade of "D":
BIOL 1510, Biological Principles or BIOL 1511, Honors Biological Principles
CHEM 2311, Organic Chemistry I

**Grading:**
Four exams- 80 %
Quizzes and class participation- 20 %

There will be **THREE** (3) lecture exams and one (1) **FINAL EXAM**. The final exam will not be comprehensive and will cover lecture material from weeks 13 to 16 of the course only. Each exam is worth 20% of your final grade. All exams will be closed book and will consist of multiple-choice, short answers and essay questions. Any exam will count as 0 and cannot

be dropped if missed without documentation. Make up exams will be different than the original exams. The TurningPoint system will be employed to help assess students during class lectures and activities. Student performance with TurningPoint questions will be considered towards the final grade. Quizzes and class participation will comprise the remaining 20% of the final grade.

**Grading scale:**
100-90% = A to A-
89-80% = B+ to B-
79-70% = C+ to C-
69-60% = D+ to D-
<60% = F

**Extra credit:**
Extra credit **may** be offered for attending specific departmental seminars and symposia, taking good quality notes, and handing in the notes. There will also be opportunities for in-class participation extra credit.

**Expectations:**
Lecture attendance is required. Students are responsible for knowing the material covered in lectures. Students are expected to read the assigned chapters prior to class to aid in their understanding and participation during lectures. Lecture information will NOT come entirely from the textbook. It is the responsibility of the student to obtain any missed information, instructions or materials that results from a missed lecture. Students are also expected to be proactive, meeting with their TA or instructors should they encounter difficulties in the class, require assistance or have any unanswered questions. Students are also responsible for knowing the material in the relevant chapters of the textbook *Brock Biology of Microorganisms,* **even if it has not been covered in the lecture**. It is also suggested that students access and use the study guide at the end of each chapter and the supplemental materials on the textbook website: (http://www.microbiologyplace.com). Please consult the Microbiology Place website for answers to frequently asked questions on the text book and lecture material.

**Lecture pdfs posted on the T-square are only an outline.** Lecture Powerpoint presentations will be posted on T-square either before or after lecture (at instructor discretion), but always before the respective exam. Additional material may be covered in lectures, and you may be tested over it.

**This course moves fast and covers a lot of material.** This is necessary for the objectives and scope of the course, and to prepare you for microbiology courses in graduate or professional school. **We encourage you to ask questions!**
**Classroom policies:**
**Consideration:** Silence all alarms—cell phone, pager, etc. Remove headphones and headsets. No talking unless asking or answering questions relevant to the course.

**Lateness:** Please be on time. If you are late and miss a quiz or part of a quiz, you will not be given an opportunity to make it up. **You will not be allowed to stay past the end of class to finish exams, no matter how late you came in.**

**Excuses and Make-ups:** Documentation of excused absence must be obtained through the Office of the Dean of Students (http://deanofstudents.gatech.edu) and provided by the class period immediately following the quiz or exam missed. Valid excuses include: personal emergencies such as being hospitalized, or being in a car accident, excused absence due to official school event, family event over which you do not have control, such as a funeral.

**Quizzes:** There are no make-ups for quizzes. If you have a valid excuse, your next exam will be prorated to be worth more in lieu of the quiz. If you do not have a valid excuse, you will receive a 0 for that quiz.

**Exams:** If you have a valid excuse, you can make up the exam during the instructor's office hours (or other pre-arranged time) within 3 days of the missed exam. If you do not have a valid excuse, you will receive a 0 for that exam.

**Regrade requests:** Any request for a reconsideration of the grading of a question on an exam, quiz, or problem set must be submitted to either Dr. Kostka or Dr. Stewart in writing. This request must include a clear explanation of why you think your answer should be considered correct.

**GT Honor Code:**
All students are expected to follow the Georgia Tech Academic Honor Code (www.honor.gatech.edu). Violations will be taken very seriously. This includes, but is not limited to the following issues pertaining to exams, quizzes, clicker activities and presentations for this class. Examples of academic honor violations from the policy statement include committing or attempting: 1) plagiarism, 2) cheating, 3) unauthorized group work, 4) fabrication, falsification and misrepresentation, 5) multiple submission.

**Americans With Disabilities Act:**
Students with disabilities needing academic accommodation should:
(1) register with and provide documentation to the ADAPTS Disability Services Program; and
(2) bring a letter to the instructor indicating the need for accommodation and what type.
This should be done during the first week of class.
This syllabus and other class materials are available in alternative format upon request.

**Syllabus change policy:**
Syllabus changes substantially affecting the grading of the course will not be made. Other syllabus changes may be made and will be announced.

**Important Georgia Tech Dates:**

| | | |
|---|---|---|
| Monday | 8/22/11 | Classes begin |
| Monday | 9/5/11 | Official school holiday |
| Friday | 10/14/11 | Last day to drop individual courses with a grade of "W" |
| Monday, Tuesday | 10/15/11-10/18/11 | Fall break |
| Thursday, Friday | 11/24/11-11/25/11 | Official school holiday |
| Friday | 12/9/11 | Last day of classes |
| Monday to Friday | 12/12/11-12/16/11 | Finals week |

**Course Schedule:**
Please note that topics may be modified/ omitted due to time constraints and exams may be changed.

| Week | Topic | Chapters | Instructor |
|---|---|---|---|
| | | | |
| 1 | Overview of microbial life | 1, 2 | Kostka |
| 2 | Cell components, cell structure/ function | 3 | Kostka |
| 3 | Energetics, metabolism, growth | 4, 5 | Kostka |
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| **Exam 1** | **Friday, September 16th** | | Kostka |
| 5 | Evolution, systematics, and prokaryotic diversity | 14-17 | Kostka |
| 6 | Metabolic diversity | 20, 21 | Kostka |
| 7 | Methods in microbial ecology | 22 | Kostka |
| 8 | Biogeochemical cycles | 23, 24 | Kostka |
| **Exam 2** | **Friday, October 14th** | | Kostka |
| 9 | Molecular biology | 7, 8 | Stewart |
| 10 | Gene expression | 9 | Stewart |
| 11 | Bacterial genetics | 11 | Stewart |
| 12 | Genetic engineering | 12 | Stewart |
| **Exam 3** | **Friday, November 11th** | | Stewart |
| 13 | Microbial genomics | 13 | Stewart |
| 14 | Animal-microbial interactions | 24 | Stewart |
| 15 | Human-microbial interactions | 28 | Stewart |
| 16 | Overview of bacterial diseases | 32-35 | Stewart |
| **Final Exam** | **Week of 12-16 December** | | Stewart |