CHATTANOOGA STATE COMMUNITY COLLEGE
Chattanooga, Tennessee
Division of Mathematics and Science

DEPARTMENTAL SYLLABUS
BIOL 2230 MICROBIOLOGY

Instructor: (See course website for contact information.)
Phone: (See course website for contact information.)
E-mail: (See course website for contact information.)

Class Hours: 3 / Lab Hours: 3 / Credit Hours: 4
Semester: __________
Room: ______________

Prerequisite: BIOL 1110 (General Biology I) or BIOL 2010 (Anatomy and Physiology I).
Co-requisites: N/A.

Entry Level Standards: Beginning students must have met the prerequisite course requirement (see above) with a grade of C or better.

Catalog Course Description: Microbial morphology and physiology; focus on energy relationships, genetics, microbial control, immune responses and human pathogens using portal of entry approach. (Exercises complementary to the lecture topics form the laboratory.)

This class is specifically designed to meet the needs of Nursing, Dental Hygiene, Respiratory Care, and Veterinary Technology students. It is not necessarily appropriate for students majoring in other areas, such as biology or pre-medical, pre-veterinary, or pre-dental studies. (For these and other programs, consult the catalog for the transfer institution.)

Textbook / Materials:
Laboratory Manual: BIOL 2230 Microbiology Laboratory Manual, Fall 2010. (REQUIRED)

NOTE: A current Microbiology textbook is on RESERVE in the IMC / Library on the main Amnicola Highway campus. (The Reserve / Check-Out Desk is on the right as you enter the Library.)

I. Required Student Learning Outcomes
Upon successful completion of this course a student should be able to:

PSLO 1: Acquire additional competencies needed for transfer to a BA/BS or other program as appropriate.

CSLO 1: Recognize and use basic, foundational microbiological terms, principles, processes (including evidence-based reasoning and logical thinking), and methods.
CSLO 2: Apply basic microbiological terms, principles, processes, and methods to decision making, problem solving, health and disease, and infection control.
CSLO 3: Recognize, describe, and use microbiological methods and tools.
CSLO 4: Perform and interpret microbiological experiments and tests.
CSLO 5: Make meaningful connections among microbiology, health, and everyday life.

II. Other Indicators
Upon successful completion of this course a student should be able to:

LI1. Locate, identify, and summarize reliable, clinically relevant information about infectious diseases.
LI2. Respond thoughtfully and logically to lecture and laboratory instructors’ oral and written questions.
LI3. Attend to detail, follow oral and written directions, and demonstrate self-discipline by completing all lecture and laboratory requirements thoughtfully and on time.

(NOTE: More specific learning objectives are available for student use via the course’s lecture website and in the lab manual. Consult your instructor for details.)
III. **Required Assessments**

**Lecture Unit Tests on Foundational Microbiology Concepts**
Students take three unit tests in lecture during the semester, covering foundational microbiological terms, processes, principles, and methods. Comprehension and clinical application of content are emphasized.

**Lecture Comprehensive Final Exam on Foundational Microbiology Concepts**
Students take one comprehensive final exam in lecture, covering foundational microbiological terms, processes, principles, and methods. Comprehension and clinical application of content are emphasized.

**Laboratory Exams on Practical Applications of Foundational Microbiology Concepts and Methods**
Students take a mid-term and a final practical exam in lab, testing laboratory content knowledge as well as laboratory methods. Interpretation of laboratory findings and connections with health and disease are emphasized.

**Laboratory Quizzes on Foundational Microbiology Concepts and Methods**
Students take a series of nine quizzes in lab, testing laboratory methods and content knowledge. Comprehension and clinical application are emphasized.

**Completion of Foundational Microbiology Laboratory Tasks**
Students use foundational microbiology laboratory tools and methods to produce a sterile culture (after aseptic transfer), stained slides for microscopic viewing, a visible image of a specimen using the oil-immersion microscope, and viable microbial cultures following inoculation of biochemical test media. Appropriate appearances of end-products and correct interpretation of biochemical test data are emphasized.

**CSLO / Assessment Alignment:**

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<thead>
<tr>
<th>CSLO</th>
<th>CSLO 1</th>
<th>CSLO 2</th>
<th>CSLO 3</th>
<th>CSLO 4</th>
<th>CSLO 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment(s)</td>
<td>Lecture Unit Test 1</td>
<td>Lecture Unit Test 1</td>
<td>Completion of Lab Tasks</td>
<td>Completion of Lab Tasks</td>
<td>Lecture Unit Test 1</td>
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<tr>
<td></td>
<td>Lecture Unit Test 2</td>
<td>Lecture Unit Test 2</td>
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<td>Lecture Unit Test 2</td>
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<td></td>
<td>Lecture Unit Test 3</td>
<td>Lecture Unit Test 3</td>
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<td>Lecture Unit Test 3</td>
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<td></td>
<td>Lecture Final Exam</td>
<td>Lecture Final Exam</td>
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<td>Lecture Final Exam</td>
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<tr>
<td></td>
<td>Laboratory Exams</td>
<td>Laboratory Exams</td>
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<td>Laboratory Exams</td>
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<tr>
<td></td>
<td>Laboratory Quizzes</td>
<td>Laboratory Quizzes</td>
<td></td>
<td></td>
<td>Laboratory Quizzes</td>
</tr>
</tbody>
</table>

IV. **Topics**

Introduction to Microbiology
Types of Microorganisms
Prokaryotic Cells
Microbial Metabolism
Microbial Growth
Control of Microbial Growth
Eukaryotic Microorganisms and Parasites
Genetics
Viruses
Infectious Disease Processes and Related Terminology
Defenses Against Disease and Their Applications
Immunological Disorders
Antimicrobial Therapy
Selected Infectious Diseases
Microbiological Laboratory Tools and Methods and Their Applications
V. **Instructional Activities**
(During this course a student will have the opportunity to actively engage in the learning experiences offered.) Learning experiences may include but are not limited to the following:

I-1. Lecture richly interspersed with questioning / discussion and instructor modeling  
I-2. Hands-on laboratory activities  
I-3. Reading the text, lab manual, and other course-related resource  
I-4. Use of online and other digital course-support resources  
I-5. Written research assignments  
I-6. Oral presentations linking course content to current events  
I-7. Group work  
I-8. Case studies  
I-9. Skills assessment (production of lab items; performance of lab tasks)  
I-10. Quizzes, unit tests, and exams  
I-11. Learning styles assessment  
I-12. Communication (including e-mail) with instructors / peers

VI. **Assessment Policies**

A. **Lecture Testing Procedures:**

Unit tests will be given in lecture, based on class discussions, the textbook, and other instructional materials / activities used in class or assigned for completion outside class. A comprehensive lecture final exam will be given at the end of the semester. (According to Life Sciences departmental policy, each student’s overall course grade must include the student’s comprehensive lecture final exam score.)

- **No Lecture Make-Up Unit Tests or Exams** will be given. No exceptions will be made to this policy.
- With prior arrangements, it may be possible for a student to take a lecture unit test or lecture final exam prior to the scheduled time. If a lecture unit test or lecture final exam is missed without prior arrangements, a grade of zero (0) will be assigned for the missed test/exam.
- The lowest score on a lecture unit test will be replaced at the end of the semester with the grade earned on the lecture final exam if doing so works to the student’s advantage (except in a case where Academic Integrity has been violated).
- This means:
  - If a lecture unit test is missed, the missed test score will automatically be assigned a grade of zero (0). The missed test score will automatically become the student’s lowest unit test score and will automatically be replaced by the student’s lecture final exam score.
  - If more than one lecture unit test is missed, a grade of zero (0) will be recorded and kept for any additional missed unit test score(s).
  - If no lecture unit tests are missed, the lecture final exam score will replace the student’s lowest lecture unit test score if doing so will bring up the student’s overall course average (except in a case where Academic Integrity has been violated.)
- It is in each student’s best interest to take all lecture unit tests and the lecture final exam.
- Please do not telephone your instructor for grades. (It is illegal for instructors to give out grade information over the telephone.) Grades may be posted on the course website for student access.
- After lecture tests / exams have been discussed in class, all test / exam materials must be returned to the instructor to retain.
B. **Lecture Assignments:**

Written research assignment points are incorporated into lecture unit test / lecture final exam scores. Consult your instructor for details.

- Assignments **MUST** be received by the instructor by the **BEGINNING** of class on the due date. Late homework will **NOT** be accepted for credit for any reason.
- Students are expected to attend class on a regular basis. Absence from class (or from any part of class) such that announcements (ex. about assignment due dates or test / exam dates) are missed will **NOT** constitute a reason for work to be accepted late or for make-up tests / exams to be given. It is the student’s responsibility to catch up on all course work and announcements missed due to absence.
- Supplemental information and activities posted on the course website or available via lecture study videos enhance but do **not** replace classroom discussions / activities.

C. **Laboratory Expectations:**

Laboratory assessments will be based on completion of practical laboratory mid-term and final exams, quizzes, and specified lab tasks.

Laboratory attendance is **CRITICAL.** Missed labs **CANNOT** be made up from one week to the next. It is the student’s responsibility to make **PRIOR** arrangements with the appropriate lab instructor (on a space available basis) to attend a make-up lab later in the **same** week after missing a lab.

The laboratory mid-term exam and final exam **MUST** be taken **AT THEIR REGULARLY SCHEDULED TIMES** unless: (1) The student is involved in a rare, legitimately documented emergency **AND** (2) The student has made alternate testing arrangements with his / her laboratory instructor (at the laboratory instructor’s discretion) **PRIOR** to the regularly scheduled exam time.

Quizzes based on the previous lab’s content will be given during the first ten minutes of lab. Questions will require students to **apply** information learned. Students will write their quiz answers on their own notebook paper.

**LAB QUIZZES CANNOT BE MADE UP FROM ONE WEEK TO THE NEXT or IN ANOTHER LAB SECTION DURING THE WEEK.** Students who come to lab late (after a quiz has already been completed) will **NOT** be allowed to make up the quiz during the same or any other lab period.

The following lab tasks will be assessed:

- Using aseptic technique to complete a sterile transfer
- Focusing the oil-immersion microscope
- Staining microscope slides
- Inoculating biochemical tests and interpreting results from them in the Unknowns activity
  (Requires attendance / participation during two lab meetings.)

**LAB TASK POINTS CANNOT BE MADE UP FROM ONE WEEK TO THE NEXT or EARNED IN ANOTHER LAB SECTION DURING THE WEEK.**

**BONUS** may **NOT** be submitted or presented during a make-up lab.

**POINTS MAY BE DEDUCTED FROM A STUDENT’S LAB GRADE FOR FAILURE TO COMPLY WITH DIRECTIONS.**

**IN ORDER TO COMPLY WITH FEDERAL COPYRIGHT LAWS, STUDENTS ARE NOT PERMITTED TO TAKE PICTURES OF MODELS, SPECIMENS, OR MICROSCOPE SLIDES.**
D. **Final Grade Calculation**  *Final grades are based solely on points earned in this course.*

<table>
<thead>
<tr>
<th>LECTURE</th>
<th>LAB</th>
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<tbody>
<tr>
<td>Assessment</td>
<td>Assessment</td>
</tr>
<tr>
<td>Number of Points Possible</td>
<td>Number of Points Possible</td>
</tr>
<tr>
<td>Lecture Unit Test 1</td>
<td>Lab Mid-Term Exam</td>
</tr>
<tr>
<td>100</td>
<td>50</td>
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<tr>
<td>Lecture Unit Test 2</td>
<td>Lab Final Exam</td>
</tr>
<tr>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Lecture Unit Test 3</td>
<td>Lab Quizzes</td>
</tr>
<tr>
<td></td>
<td>(9 @ 4 points each; no make-ups)</td>
</tr>
<tr>
<td>100</td>
<td>36</td>
</tr>
<tr>
<td>Lecture Final Exam</td>
<td>Lab Tasks:</td>
</tr>
<tr>
<td>100</td>
<td>(14 points total – see below)</td>
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<tr>
<td>Sterile Transfer</td>
<td></td>
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<tr>
<td></td>
<td>4</td>
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<tr>
<td>Focusing</td>
<td></td>
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<tr>
<td></td>
<td>2</td>
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<tr>
<td>Slide 1</td>
<td></td>
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<tr>
<td>(Simple/Negative/Capsule)</td>
<td>2</td>
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<tr>
<td>Slide 2</td>
<td></td>
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<tr>
<td>(Gram/Acid-Fast/Endospore)</td>
<td>2</td>
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<tr>
<td>Inoculate/interpret</td>
<td></td>
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<tr>
<td>unknown cultures</td>
<td>4</td>
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<tr>
<td>Lecture Total:</td>
<td>Lab Total:</td>
</tr>
<tr>
<td>400</td>
<td>150</td>
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**550 total course points available.**

Letter grades will be assigned to students’ final course averages in conformity with college-wide policy, based on the following percentage scale:

VI. **Grading Scale**

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Total Course Points Required</th>
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<tbody>
<tr>
<td>A</td>
<td>90 – 100 %</td>
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<tr>
<td></td>
<td>493 to 550</td>
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<tr>
<td>B</td>
<td>80 – 89 %</td>
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<tr>
<td></td>
<td>438 to 492</td>
</tr>
<tr>
<td>C</td>
<td>70 – 79 %</td>
</tr>
<tr>
<td></td>
<td>383 to 437</td>
</tr>
<tr>
<td>D</td>
<td>65 – 69 %</td>
</tr>
<tr>
<td></td>
<td>355 to 382</td>
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<tr>
<td>F</td>
<td>Below 65 %</td>
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<td></td>
<td>354 or below</td>
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</table>

Minimal acceptable level of overall course mastery = 70%.

VII. **Course Delivery Format Options:**
Faculty may require online activities and assignments to include online tests and submission of all written and online communications. The extent of online activities / assignments may vary by course but will be specified on the syllabus.

**Standard Format** – This format is the traditional format and may use an online format to provide access to “static” materials which include the syllabus, course material, contact information, and presentations. Faculty must make available when requested a copy of the syllabus and any other instructor-provided course materials, including their contact information. Faculty may require online activities and assignments to include online tests and submission of all written and online communications. The extent of online activities / assignments may vary by course but will be specified on the syllabus.

**Hybrid Format** – This format requires significant online activity. Students in hybrid classes must access course content and assignments using the Internet in order to pass the class, whether it meets full-time or part-time in the classroom. Faculty need not hand out a copy of the syllabus and any other required course material, including their contact information.
Online Format – This format requires that the entire class be conducted online. The syllabus, course material, contact information, and presentations will be provided online through the course management system. Assessments may be conducted online or in a proctored environment.

In this course, students must be able to follow directions to access course materials and do course activities online. It is also desirable for students to have the ability to use an Internet search engine to independently locate additional online course-related information.

Please note that student computer labs (with Internet access) are available for use at Chattanooga State.

VIII. College / Course Policies

This class is governed by policies and procedures stated in the current Chattanooga State Student Handbook. (The Chattanooga State Student Handbook may be found at http://www.chattanoogastate.edu/students/pdf/sshand.pdf.) Additional or more specific guidelines may apply.

Academic Integrity / Academic Honesty

In their academic activities students are expected to maintain high standards of honesty and integrity. Academic dishonesty is prohibited. Such conduct includes but is not limited to an attempt by one or more students to use unauthorized information in the taking of an exam; to submit as one’s own work themes, reports, drawings, laboratory notes, computer programs, or other products prepared by another person; or to knowingly assist another student in obtaining or using unauthorized materials. Plagiarism, cheating, and other forms or academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the regular institutional procedures as a result of academic misconduct, the instructor has the authority to assign an “F” or zero for an activity or to assign an “F” for the course.

All graded work completed as part of this course is expected to be your own – your own words, ideas, and effort. All graded work is to be done individually.

Reminder: Using another person’s work as your own, working together with another person to find information or answers, copying, cheating, and all other violations of academic integrity are absolutely prohibited.

Biology courses at Chattanooga State are governed by the academic integrity policies and procedures found in the Student Handbook published by the College. (See also an excerpt from the Chattanooga State Academic Integrity Guidelines available on the course website.) The following additional or more specific guidelines also apply:

- **Electronic Devices:** No electronic devices may be used during quizzes, tests, or exams in this course.
- **Violations of Academic Integrity:** When a suspected academic integrity violation occurs in this course, the situation will be reviewed by the instructor and the Department Head and discussed with the individual(s) involved. Persons identified as taking part in a violation of academic integrity will be subject to sanctions as follows:
  - **First Offense in the Course:**
    - A grade of zero (0) on the assignment or evaluation for all persons involved,
    - A 10% reduction in the overall course grade for all persons involved, and
    - A report filed with the College’s Judicial Affairs Officer.
  - **Second Offense in the Course:**
    - A grade of “F” for the course for all persons involved and
    - A report filed with the College’s Judicial Affairs Officer.

Specific academic integrity policies regarding assignments, test taking, and test review will be followed in this course. (See course website for details.)
**Disruptive Students**
The term “classroom disruption” means student behavior which a reasonable person would view as substantially or repeatedly interfering with the activities of a class. A student who persists in disrupting a class will be directed by the faculty member to leave the classroom for the remainder of the class period. The student will be told the reason(s) for such action and given an opportunity to discuss the matter with the faculty member as soon as practical. The faculty member will promptly consult with the Division Dean and the College Judicial Officer. If a disruption is serious and other reasonable measures have failed, the class may be adjourned and the campus police summoned.

- Unauthorized use of any electronic device constitutes a disturbance.
- If you are concerned about the conduct of another student, contact your instructor, the Department Head, or the Division Dean.

All students deserve the opportunity to learn as much as possible during each class meeting. Chattanooga State students are expected to “respect faculty, staff, and each other. Behavior which obstructs learning or threatens safety and security of others and interferes with the educational process of another student cannot be tolerated.”

Please note that unauthorized use of any electronic device is disruptive, as is excessive noise. Excessive noise includes text messaging, excessive talking, and pager / cell phone noise.

- Do not text message during class.
- Participate during class discussions, but do not chat with classmates during class time.
- Turn pagers / cell phones off during class time, especially while testing.

**ADA Statement**
Students who have educational, psychological, and / or physical disabilities may be eligible for accommodations that provide equal access to educational programs and activities at Chattanooga State. These students should notify the instructor immediately and should contact Disabilities Support Services within the first two weeks of the semester in order to discuss individual needs. The student must provide documentation of the disability so that reasonable accommodations can be requested in a timely manner. All students are expected to fulfill essential course requirements in order to receive a passing grade in a class, with or without reasonable accommodations.

If an Accommodations Plan has been developed for you by the Office for Disabilities Support Services (Student Center, 1st floor, phone: 423-697-4452), please provide a copy of your Accommodations Plan to your instructor as soon as possible after classes begin.

**Electronic Communications**
Chattanooga State considers electronic communication (including but not limited to College e-mails, listservs, College-hosted sub-Webs, and College-adopted learning management systems such as eLearn) to be an appropriate mechanism for official communication with Chattanooga State students, staff, and faculty members.

- **Electronic Mail or E-Mail**
  Electronic mail or “e-mail” is considered an official method of communication to and from Chattanooga State students, staff, and faculty members. The College sends official communications via e-mail with the full expectation that these groups of individuals will receive and read these e-mails in a timely fashion.

- **For Students**
  - This procedure ensures that all students enrolled have access to this form of communication. It ensures students can be reached through a standardized channel by Chattanooga State faculty and staff as needed. Communications sent via the College-provided e-mail system TigerWeb may include notification of Chattanooga State information including but not limited to admissions, enrollment services, advising, financial aid, etc.
  - Official College TigerWeb e-mail accounts will be created automatically by the College within two (2) College business days of receipt of an admission application along with the appropriate College application fee. A student must remain enrolled in an appropriate class (i.e., if the student fails to pay tuition or is otherwise legitimately dropped, the e-mail account may be removed). A letter containing the account username and password will be mailed to the home address listed on the application, and an e-mail containing the username and password will be sent to the e-mail address listed on the application.
  - E-mail accounts will be discontinued if a student is not enrolled for two (2) consecutive full terms.
Students are expected to read and respond as appropriate to their Chattanooga State official TigerWeb e-mail on a frequent and consistent basis. The College recommends checking e-mail daily since certain communications may be time-sensitive. A link to access TigerWeb is located on the Chattanooga State webpage at www.chattanoogastate.edu.

- Chattanoog State offices cannot validate that a communication sent by e-mail is from a student unless it comes from a valid College e-mail address. If students make queries to Chattanooga State administrative offices or faculty from “nickname” e-mail accounts (such as hotmail.com, cfl.rr.com, etc.) such queries may not be received and/or students may be asked to resubmit such queries using an official Chattanooga State e-mail address.
- Inquiries from students requesting information regarding their official student account/records/financial aid/fees, etc., must be submitted via the official TigerWeb College e-mail account. All replies to inquiries will be sent to an official Chattanooga State e-mail account, regardless of how the inquiry was submitted.
- If you have difficulty accessing an official Chattanooga State e-mail account (TigerWeb or eLearn e-mail), contact the Chattanooga State Computer Operations Help Desk at 423-697-3375.

**Course-Related E-Mails**

**All** course- e-mails should be sent through the course website (eLearn).

**Affirmative Action**

Students who feel that they have not received equal access to educational programming should contact the College Affirmative Action Officer.

**Dropping the Course**

Students who decide to “drop” this course during the semester should **NOT** just stop coming to class. Instead, they should go to the Records Office (in the campus Student Center) and complete the necessary paperwork and pay any necessary fee to change enrollment status to W / Withdrawal (see definition below).

- **W = Withdrawal:** The student has officially dropped the course through the campus Records Office by the semester drop deadline. The student no longer comes to class and does not receive a letter grade or credit for the class on the transcript. (The transcript will show a “W” for the course.) The student may re-enroll in the class for a letter grade during a later semester.

In rare, legitimately documented emergency situations only, students may request to be assigned an “I” grade for the course:

- **I = Incomplete:** To be eligible for an “I,” the student must have completed all course work except the lecture final exam with an average of 70 or better. The student must lack only completion of the lecture final exam. The student must request the “I” before the end of the course and must make all necessary arrangements with the instructor to complete the lecture final exam within the first few weeks after the end of the semester. If course requirements are not completed within the specified time frame, the “I” grade will automatically convert to an “F” on the student’s transcript.

**Instructor Absence**

In the event of a scheduled instructor absence, a substitute instructor, alternate out-of-class assignment, or lab assignment appropriate to the class will be provided. In case of an emergency instructor absence, every effort will be made to provide an appropriate out-of-class assignment or lab.

**Course Contracts / Policy Agreement Forms**

Early in the semester, each student will be required to complete, sign, and submit to the lecture and the laboratory instructor policy agreement forms for lecture and lab respectively, signifying that the student knows of and intends to comply with the stated policies of the course, the Department, and the College.

The instructor reserves the right to modify this syllabus in writing during the course of the semester.