TEXT BOOK: Microbiology with Disease by Taxonomy
FOURTH edition, by; Robert W. Bauman

LAB MANUAL: MICROBIOLOGY: Lab Manual for Biology 2420, HCCS, 2006, Ed. 5.5
Edited by: Donna S. Wiersema and Pramila Sen

CRN#: 26232
Lecture: 11:30-2:30 Room LHSB 306 3 hr
Lab: 11:30-2:30 Room LHSB 307 3 hr

Eagle Online: Course content and grades will be available on Eagle Online. Course related
E-mails will be sent using Quick mail (part of EO 2)
https://eo2.hccs.edu/login/index.php

On Line resource:

Lecture notes and power point slides are available on the internet on Eagle Online 2. You should bring them to the class for note taking.

Study Outline: Student Study Outline for this course, authored by Sen is also available in
the HCC-and other area book stores. This study guide has chapter outlines and variety of
practice questions to help you better understand and comprehend the topics and perform well
in exams.

Mastering Course ID: central63448

Course prerequisite: BIOLOGY 1406 - Required

Mastering assignments are located on a different website. To access them, you first need to register:
Get Registered

1. Go to www.pearsonmastering.com, under the large Register section on the right side of the page, and click the Student link.
2. Next, enter the Course ID for your course (central63448).
3. After this, either Create a new Pearson username/password, or, if you’ve already registered for another Pearson product (i.e. MyMathLab), Sign In with that username/password.
4. On the next page, click the Access Code button if you purchased a package with an access code from the bookstore, OR purchase instant access now by clicking on the purchase options under the Use a Credit Card or PayPal section.
5. Sign In. You have now registered! Now, it’s time to sign. To do this, go to www.pearsonmastering.com and click the Sign In button in the top right. Enter the username/password you either created or entered in Step 3.

If you need any technical help:

Contact Pearson 24/7 Support: http://247pearsoned.custhelp.com/

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TENTATIVE COURSE SCHEDULE*  FALL’14

<table>
<thead>
<tr>
<th>Week</th>
<th>Ch</th>
<th>Topics (Tuesday)</th>
<th>Lab</th>
<th>(Thursday) LHSB 307</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Orientation</td>
<td>1</td>
<td>Lab orientation</td>
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<tr>
<td></td>
<td></td>
<td>A brief History</td>
<td>2</td>
<td>Care and Use of the</td>
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<td>of Microbiology</td>
<td>3</td>
<td>Microscope</td>
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<td>2</td>
<td>3</td>
<td>Mastering Chapter 1,3; Due 9/1, 6PM</td>
<td>2</td>
<td>Simple Staining</td>
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<td></td>
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<td>Cell Structure and Function</td>
<td>3</td>
<td>Negative Staining</td>
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<td>3</td>
<td>4</td>
<td>Mastering Chapter 4 Due- 9/15, 6PM</td>
<td>5</td>
<td>Gram Staining</td>
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<tr>
<td></td>
<td></td>
<td>Microscopy, Staining, and Classification</td>
<td>6</td>
<td>Acid-Fast Staining</td>
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<tr>
<td>4</td>
<td>6</td>
<td>LECTURE EXAM 1 (CH 1,3,4) - 9/16</td>
<td>4</td>
<td>Isolation of Bacteria</td>
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<td></td>
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<td>Microbial Nutrition and Growth</td>
<td>7</td>
<td>Bacterial Spores,</td>
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<td>8</td>
<td>Capsules</td>
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<td>9</td>
<td>Flagella &amp; Motility Testing</td>
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<tr>
<td>5</td>
<td>7</td>
<td>Mastering Chapter 6 Due-9/22, 6PM</td>
<td>7</td>
<td>Recombinant DNA Technology</td>
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<tr>
<td></td>
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<td>Microbial Genetics</td>
<td>8</td>
<td>Mastering Chapter,8; Due- 10/4,6PM</td>
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<td>9</td>
<td>Review for Lab Exam</td>
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<tr>
<td>6</td>
<td>8</td>
<td>Mastering Chapter 7, Due-9/29, 6PM</td>
<td>13</td>
<td>Control of Microbial Populations:</td>
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<tr>
<td></td>
<td></td>
<td>Recombinant DNA Technology</td>
<td>Room 307</td>
<td>Effect of Heat</td>
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<td></td>
<td>Mastering Chapter,8; Due- 10/4,6PM</td>
<td></td>
<td>Review for Lab Exam</td>
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<tr>
<td>7</td>
<td></td>
<td>LECTURE EXAM 2 (ch 6,7,8)</td>
<td>Lab Exam 1 (10/9) ROOM 307</td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Topics</td>
<td>Due Date/GMT Time</td>
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<tr>
<td>8</td>
<td>9</td>
<td>Controlling Microbial Growth in the Environment</td>
<td>Mastering Chapter 9,10; Due- 10/13, 6PM</td>
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<td>9</td>
<td>10</td>
<td>Selective, Differential and Enriched Media</td>
<td>10/13, 6PM</td>
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<tr>
<td>10</td>
<td>11</td>
<td>Controlling Microbial Growth in the Body: Antimicrobial Drugs</td>
<td>Mastering Chapter 10; Due- 10/20, 6PM</td>
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<td>12</td>
<td>Gas Requirements</td>
<td>10/13, 6PM</td>
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<td>13</td>
<td>Characterizing and Classifying Prokaryotes</td>
<td>Mastering Chapter 11,12; Due- 11/27, 6PM</td>
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<td></td>
<td>14</td>
<td>Control of Microbial Populations: Effect of Chemicals</td>
<td>Open book</td>
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<td>15</td>
<td>Carbohydrate Fermentation Test</td>
<td>10/13, 6PM</td>
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<td>11</td>
<td>13</td>
<td>Mastering Chapter 13, Due-11/3, 6pm</td>
<td>Triple Sugar Iron Fermentation</td>
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<td>16</td>
<td>Characterizing and Classifying Viruses, Viroids, and Prions</td>
<td>The IMViC Biochemical Test</td>
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<tr>
<td>12</td>
<td>15</td>
<td>Mastering Chapter 15, Due-11/10, 6pm</td>
<td>Bacteriophage</td>
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<td>19</td>
<td>Adaptive Immunity</td>
<td>Antibiotic Sensitivity Testing</td>
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<tr>
<td>13</td>
<td>16</td>
<td>Mastering Chapter 16, Due-11/17, 6pm</td>
<td>White Blood Cells</td>
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<td></td>
<td>20</td>
<td>Adaptive Immunity...contd.</td>
<td>Lab Exam 2-review</td>
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<tr>
<td>14</td>
<td>16</td>
<td>Adaptive Immunity</td>
<td>Lab Exam 2 (12/4) 12:00 PM-Room 307</td>
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<td></td>
<td>14</td>
<td>Infection, Infectious Diseases and Epidemiology</td>
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<td>15</td>
<td>15</td>
<td>LECTURE EXAM 4 (Ch13,14,15,16)</td>
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<td>16</td>
<td>16</td>
<td>MANDATORY DEPARTMENTAL-FINAL-COMPREHENSIVE (12/9; 11:30AM)</td>
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</table>

*Syllabus Modification*: I will make every effort to adhere to the requirements in this syllabus during the semester. I reserve the right to make any necessary changes. Students will be notified in a timely manner of any such change during the class on Thursday and/or by EO e-mail.

**Mastering Assignments**: Mastering assignments will include a variety of course appropriate coaching/tutorial questions. They will help you to understand the course content. You are required to complete all assignments during the semester, and for each
of them a specific due date is given in the syllabus. They are worth 100 points, and will be counted in final grade computation.

Please refer to the attachment for details of How to get started with Pearson’s Modified Mastering.

**Course Objectives:** The goal of this course is for the students to develop a full understanding of biology of microorganisms including morphology, metabolism, taxonomy, culture techniques, microbial genetics, immunology, virology, mycology, parasitology and diseases. Students are also given hands-on experience on handling live microorganisms using aseptic techniques and applying various staining procedures used for identification of bacteria.

The course is an integration of 2 parts, lecture and lab. Lecture part requires a standard textbook. For additional help, an on-line course outline and power point lectures have also been provided by the instructor. The lab part requires use of the lab book and conducting experiments on the course related topics in the biology laboratory, LHSB 307 at Central College. Students must buy and read the correct text book and lab manual. These notes are not designed to be a comprehensive review, but an overview of material covered in the text with added insights provided by your instructor. It may be updated during the course. The online portion of EO course will be accessible with a login ID and password and are to be used only for this course and only by you, the student.

Most of you will find that the course material is new to you. Please set aside adequate time for study – you will probably need to spend at least 6-8 hours per week!!!

**CONTACT INFORMATION:** email: pramila.sen@hccs.edu

I am available to meet with you in Biology Office (LHSB 402). I prefer that you e-mail me to make an appointment.

**EXAMS AND GRADING:**

- **Exams:** There will be a total of five lecture exams and one final exam during the semester. Each exam will contain a number (50-70) of multiple-choice, true-false, matching and fill in the blank questions. Multiple Choice questions have to be answered on the scantron. Each exam has an equal value (100 pts each). The Departmental final exam is cumulative and mandatory. Out of the five lecture exams you have a choice to drop one. Your lowest grade automatically becomes your drop grade. If you miss an exam, that becomes your drop grade. If you miss two exams, you get a zero in one exam.

- If you arrive late for an exam, you will have only the time remaining from the official start of the exam. **THERE WILL BE NO MAKEUP EXAMS**
unless you can prove you had to go to court or were seen by a doctor on the day of the exam.

- On a test day, once someone has finished the exam, no other student may enter and start that exam. So, if you are late for class on a test day, you may be prohibited from taking the test.

- **Laboratory exam:** Two laboratory tests will be given, each worth 100 points. You CAN NOT drop the lab exam; therefore if you miss it, you will be given a zero for the exam. Everything that is covered during the lab sessions will be included in the lab exams. **There is absolutely no make up for the lab exam.**

- **Lab exam review:** There will be a review session a week before each lab exam. The lab study pages for review are also available at the following site. [http://imc02.hccs.edu/BiologyLabs/index.html](http://imc02.hccs.edu/BiologyLabs/index.html) 
  - [www.hccs.edu/biologylabs](http://www.hccs.edu/biologylabs)

- **Assignments:** You will also use an additional online site called **Mastering Microbiology** which is provided by the publisher of your text. On this website you will work on assignments. You need two different codes to use Mastering:
  - If you bought a new textbook, you already have the code you need to get into the Mastering Biology site: it is packaged with your textbook. If you have not yet bought a text and wish to buy an e-text, it will also include the code for Mastering. E-book can be purchased from: [www.pearsonmastering.com](http://www.pearsonmastering.com)
  - If you have purchased a used book, the access code is not included in it. Access code can be purchased from the same web site. The other information you will need is my Mastering course ID: **central63448**
  - You are required to complete ALL assignments. They are worth 100 points.

**CELL PHONES, PAGERS AND OTHER ELECTRONIC DEVICES:** All electronic devices including cell phones, pagers, BlackBerrys or iPods should be switched OFF (NOT on vibrate) and put away during class time and during all exams. **Answering cell phones and texting are not permitted during class time.** Texting during class indicates that you are not actively involved in the learning process, and will earn you an absence for that class. Please remove ear buds during class. If you anticipate a potential emergency situation, please talk to me before class starts so that we can make the necessary arrangements for that particular day. Use of recording devices, including camera phones and tape recorders, is prohibited in classrooms, laboratories, faculty offices, and other locations where instruction, tutoring, or testing occurs. Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Office for Students with Disabilities for information regarding reasonable accommodations.
Reminder: Under no circumstances should any electronic devices be out or used during the exams. Anyone found using these devices will have their exam taken up, and will receive a score of “0” for the test.

- **TARDIES AND LEAVING EARLY:** Talking and moving during class time is a distraction to your classmates and to your instructor. So please plan to attend class on time and to leave only at the end of the period. Understandably, emergencies can happen that result in your tardiness or early departure. Please speak to me in this regard so that you can be excused for your late arrival or early departure on a particular day. However, please do not make a habit of being tardy or leaving early since this will be reflected as an unexcused absence from class.

- **ACADEMIC INTEGRITY:** Students are expected to do their own work diligently and honestly. Anything that is suspected to be cheating will result in a grade of zero.

**GRADE COMPUTATION:**

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<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>4 lecture exams</td>
<td>300</td>
<td>43%</td>
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<tr>
<td>(1 lowest to be dropped)</td>
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<tr>
<td>Comprehensive Final exam</td>
<td>50</td>
<td>7%</td>
</tr>
<tr>
<td>2 Lab Exams</td>
<td>200</td>
<td>29%</td>
</tr>
<tr>
<td>Lab Reports and participation</td>
<td>50</td>
<td>7%</td>
</tr>
<tr>
<td>Mastering Assignments</td>
<td>100</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>700</strong></td>
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</tbody>
</table>

A = 630-700 (90-100%)
B = 560-629 (80-89%)
C = 490-559 (70-79%)
D = 420-489 (60-69%)
F = < 420 (0-59%)

**RULES AND REGULATIONS:**

1. Textbook and lab manual are required.
2. Full class attendance is required. Students with more than four unexcused absences may result in an administrative withdrawal. Students are responsible for everything covered during their absence.
3. To avoid disruption in the class room, all **cell phones** must be set on the silence mode. **Texting** is also prohibited during lab sessions.
4. Children or anyone who is not officially enrolled in the course will not be allowed in the laboratory.
5. Eating, drinking or smoking is strictly prohibited in the laboratory.
6. You must read the laboratory safety rules before doing any of the lab exercises.
7. The lab safety release form must be signed during the first lab session.
8. **EXAMS:** Exams will consist of multiple choice, fill in the blanks, matching and essay questions based on materials covered in the classroom, and the text. The following guidelines will govern all exams:
   1. The students will not be allowed to leave the classroom before completing an exam.
   2. Anyone arriving late will not be allowed to take an exam if any student has completed the exam and left the classroom.
   3. All lecture and lab exams will be **timed.** Students arriving late will not be given extra time to complete an exam.
   4. Students may **not use dictionaries** or any electronic aid during any in person and closed book exam.
   5. Make-up exams will be given only in the event an emergency is documented.
   6. Students must e-mail or call me immediately (if possible, on or before the day of the scheduled exam), explain the reason for missing the exam, and bring the required document to request a make-up.
   7. I will then decide if the request is valid.
   8. The make-up must be taken before the next scheduled exam.
   9. **Both lab exams are mandatory.** If you miss a lab exam, you will receive a zero in the exam. There will be absolutely **no make-up for a lab exam.**

9. Grades will be posted on EO after every test. You may receive your final grades at the end of the semester via Internet by logging on to www.getgrades.com or www.hccs.edu or by calling toll free at 1-887-341-4300. Proper identification is required to receive the final grade. The transcripts will be mailed by the HCCS office only if requested by the student.

10. **Cheating is not permitted.** If it occurs, the students may receive a zero for the exam, or a grade of “F” in the course.
11. **NO MAKE-UP exams will be given.** If you miss an exam it automatically becomes your drop exam, if you miss two exams it is suggested that you withdraw from the course.
12. The lecture exams will consist of various types of questions including multiple choices, matching; fill in the blanks, definitions and assays.
13. Please have the correct lab book, edited by Wiersema & Sen. **Other lab books will not be accepted.**
14. Both lab exams are mandatory. If you miss a lab exam, you will receive a zero in the exam. No make up lab exam is given in Microbiology.
15. Lab reports are an important part of the course and are due upon completion of the experiment. They will be corrected, graded and returned back to you. It is then your responsibility to keep them to study and turn them in on the lab exam days.

**COMMUNICATION:** Announcements will appear on the homepage of the EO, EO e-mail (Quick mail) and/or announced during the class. Please check EO email and the homepage frequently (at least twice per week). If you miss a lecture or lab session, check with someone in class for the missed work. If you have any question, e-mail me at pramila.sen@hccs.edu.
ISSUANCE OF EXAM GRADES: Grades will be posted on EO grade book as soon as possible. Grade book will have all your grades.

You can check your final grade on the web site www.hccs.edu OR call toll free 1-877-341-4300. The HCC system office will no longer mail the transcripts to you.

IMPORTANT DATES:

<table>
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<tr>
<th>Important Dates</th>
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<tbody>
<tr>
<td>August 24</td>
<td>Last Day for drop/add/swap</td>
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<tr>
<td>September 1</td>
<td>Labor Day Holiday</td>
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<tr>
<td>October 31</td>
<td>Dead line for Administrative and Student Withdrawal</td>
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<tr>
<td>November 27-Nov 30</td>
<td>Thanksgiving Holiday</td>
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<tr>
<td>December 9</td>
<td>Final Exam</td>
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<tr>
<td>December 15</td>
<td>Grades available to students</td>
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</table>

New DE Student Userid: Your new student login userid will be your HCC User ID (sometimes referred to as the “W” number). All HCC students have a unique User ID. It is the same number you use for class registration. If you do not know your User ID you can look it up using the following links:

- From the HCC home page, click on “Register Here”
- On the Student Web Services page, click on “Registration (Online)”
- Click on “Retrieve User ID” and follow the instructions.

Or use the direct link: [https://hccsaweb.hccs.edu:8080/servlets/iclientservlet/sauat/?cmd=start](https://hccsaweb.hccs.edu:8080/servlets/iclientservlet/sauat/?cmd=start)

The default student password will still be “distance.” As always, students will then be prompted to change their password after their first login.

The default student password is “distance.” Students will then be prompted to change their password after their first login. Please visit the Distance Education (DE) Technical Support website if you need additional assistance with your login.

HCC Course Withdrawal and Attendance Policy

Beginning Fall 2007, the State of Texas imposes penalties on students who drop courses excessively. Students are limited to no more than SIX total course withdrawals throughout their educational career at a Texas public college or university.

To help you avoid having to drop/withdraw from any class, contact your DE professor regarding your academic performance. You may also want to contact your DE counselor.
to learn about helpful HCC resources (e.g. online tutoring, child care, financial aid, job placement, etc.).

HOW TO DROP
• If a student decides to drop or withdraw from a class upon careful review of other options, the student can drop online prior to the deadline through their HCC Student Center.
• HCC and/or instructors may drop students for excessive absences without notification (see Class Attendance below).
• Students should check HCC’s Academic Calendar by Term for drop/withdrawal dates and deadlines. Classes of other duration (mini-term, flex-entry, 8-weeks, etc.) may have different final withdrawal deadlines. Please contact the HCC Registrar’s Office at 713.718.8500 for any further question.

Dead line to withdraw: October 31, 4:30PM

CLASS ATTENDANCE
As stated in the HCC Catalog, all students are expected to attend classes regularly. Students in DE courses must log in to their EO class or they will be counted as absent. Just like an on-campus class, your regular participation is required. On each Thursday, attendance will be called at the end of class meeting. If you have four or more unexcused absences, it may result into your withdrawal from the class.
If you have not logged into Eagle Online course or have not attended lab sessions by September 8th, you will be marked NEVER ATTENDED in attendance roster which will result into your administrative withdrawal and inability to access Eagle online course. Completing the DE online orientation does not count as attendance.

EARLY ALERT
HCC has instituted an Early Alert process by which your professor may “alert” you and DE counselors that you might fail a class because of excessive absences and/or poor academic performance.

INTERNATIONAL STUDENTS
Contact the International Student Office at 713-718-8520 if you have questions about your visa status.

STUDENTS WITH DISABILITIES
Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc) who needs to arrange reasonable accommodations must contact the appropriate HCC Disability Support Service (DSS) Counselor at the beginning of each semester. Instructors are authorized to provide only the HCC DSSO approved accommodations but must do so in a timely manner.
Students who are requesting special testing accommodations must first contact the appropriate (most convenient) DSS office for assistance each semester:

**DISABILITY SUPPORT SERVICES OFFICES:**

District ADA Coordinator – Donna Price – 713.718.5165
Central ADA Counselors – Jaime Torres - 713.718.6164
    Martha Scribner – 713.718.6164
System: 713.718.5165
Central: 713.718.6164 – also for Deaf and Hard of Hearing Services and Students Outside of the HCC District service areas.

After student accommodation letters have been approved by the DSS office and submitted to DE Counseling for processing, students will receive an email confirmation informing them of the Instructional Support Specialist (ISS) assigned to their professor.

**Biology Tutoring:** Tutoring emporium in San Jac Building. Learning Emporium, Rm 384
    Mon-Thurs:  7 am – 6 pm
    Fridays:    8 am - 4 pm

**LIBRARY RESOURCES**

As a DE student you have the same access to first-rate information resources that the HCC Libraries make available to all HCC students. A special website pulls together all the tools DE students will need to get their research rolling. Visit Library Resources specifically for Distance Education students.

**COURSE REPEATER POLICY:** Beginning in the Fall 2006, students who repeat a course for a third or more times will face significant tuition/fee increases at HCC and other Texas public colleges and universities. Please ask your instructor and/or counselor about opportunities for tutoring/other assistance prior to considering course withdrawal or if you are not receiving passing grades.

**VIRTUAL CLASSROOM CONDUCT:** As with on-campus classes, all students in HCC Distance Education courses are required to follow all HCC Policies & Procedures, the Student Code of Conduct, the Student Handbook, and relevant sections of the Texas Education Code when interacting and communicating in a virtual classroom with faculty and fellow students.

Students who violate these policies and guidelines will be subject to disciplinary action that could include denial of access to course-related email, discussion groups, and chat rooms or being removed from the class.

The following are strongly recommended for each student:
• Read and understand all elements of the Syllabus, and Student handbooks. Give your instructor both day and evening phone numbers and your e-mail address.
• Read and comprehend the required chapters in the textbook prior to coming to the labs on Fridays.
• Successfully complete all requirements of this course as outlined in this document.
• Contact your professor if you have any questions regarding any element of the course you do not understand.
• The student CD-Rom accompanying the textbook and student web site of the publisher are excellent sources to review course content.
• **HINT:** Work hard from the beginning of the semester rather than playing a "catch-up" game during the second half of the semester.

**Title IX and Sex Discrimination** (US Department of Education)

HCC is committed to provide learning and working environment that is free from discrimination on the basis of sex which includes all forms of sexual misconduct. Title IX of the Education Amendments of 1972 requires that when a complaint is filed, a prompt and thorough investigation is initiated. Complaints may be filed with the HCC Title IX Coordinator available at 713 718-8271 or email at oie@hccs.edu