<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>READING*</th>
<th>PROBLEMS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aug 22</td>
<td>Cells &amp; Genes</td>
<td>Ch. 1</td>
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<tr>
<td>2. Aug 24</td>
<td>Mendel’s laws</td>
<td>Ch. 2 &amp; 3</td>
<td>2.3, 43, 44, 49; 3.12, 18, 28, 29</td>
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<tr>
<td>3. Aug 26 F</td>
<td>Mitosis and Meiosis</td>
<td>Ch. 2</td>
<td>2.17-19, 26, 27</td>
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<td>4. Aug 29</td>
<td>Sex linkage &amp; Pedigrees</td>
<td>Ch. 2</td>
<td>2.50, 53, 55, 56, 74; 3.20</td>
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<tr>
<td>5. Aug 31</td>
<td>Linkage and recombination</td>
<td>Ch. 4</td>
<td>4.12-15, 17, 18, 32, 33</td>
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<tr>
<td>6. Sept 2 F</td>
<td>DISCUSSION 1</td>
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<td>Homework Due (1) Ch 1-3</td>
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<td><strong>Sept 5 Labor Day Holiday</strong></td>
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<tr>
<td>7. Sept 7</td>
<td>Chromosome maps</td>
<td>Ch. 4</td>
<td>4.23, 25, 30, 31, 47, 59</td>
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<tr>
<td>8. Sept 9 F</td>
<td>DISCUSSION 2</td>
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<td>Homework Due (2) Ch 4</td>
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<td>9. Sept 12</td>
<td>Multiple alleles</td>
<td>Ch. 6 p. 215-223</td>
<td>6.18, 21, 22, 60</td>
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<td>10. Sept 14</td>
<td>FLIPPED CLASS</td>
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<td>11. Sept 16 F</td>
<td>DISCUSSION 3 (P. Set I distrib.)</td>
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<tr>
<td>12. Sept 19</td>
<td>Gene interaction</td>
<td>Ch. 6 p. 223-242</td>
<td>6. 14,15,17,44,65,68</td>
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<td>13. Sept 21</td>
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<tr>
<td>14. Sept 23 F</td>
<td>DISCUSSION 4</td>
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<td>Homework Due (4)</td>
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<td>15. Sept 26</td>
<td>FLIPPED CLASS</td>
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<tr>
<td>16. Sept 28</td>
<td>DNA structure</td>
<td>Ch. 7 pp. 259-274</td>
<td>7. 30, 31 &amp; posted</td>
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<tr>
<td>17. Sept 30 F</td>
<td>DISCUSSION 5</td>
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<td><strong>Prob. Set I Due</strong></td>
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<td>18. Oct 3</td>
<td>Bacterial Genetics I</td>
<td>Ch.5</td>
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<tr>
<td>19. Oct 5</td>
<td>Bacterial Genetics II</td>
<td>Ch.5</td>
<td>5. 17,31,34,4047,50</td>
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<td>20. Oct 7 F</td>
<td>DISCUSSION 6</td>
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<td>Homework Due (5)</td>
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<td>21. Oct 10</td>
<td><strong>HOUR EXAM I</strong></td>
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<tr>
<td>22. Oct 12</td>
<td>DNA Structure &amp; Replication</td>
<td>Ch. 7</td>
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<tr>
<td>23. Oct 14 F</td>
<td>DISCUSSION 7</td>
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<td>24. Oct 17</td>
<td>RNA &amp; Transcription I</td>
<td>Ch. 8</td>
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<tr>
<td>25. Oct 19</td>
<td>RNA &amp; Transcription II</td>
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<td>26. Oct 21 F</td>
<td>DISCUSSION 8</td>
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<tr>
<td>27. Oct 24</td>
<td>Proteins and the Genetic Code</td>
<td>Ch. 9</td>
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<tr>
<td>28. Oct 26</td>
<td>Genetic Code continued</td>
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<td>29. Oct 28 F</td>
<td>DISCUSSION 9</td>
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<td>Homework Due (7)</td>
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<tr>
<td>30. Oct 31</td>
<td>Protein Synthesis</td>
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<td>31. Nov 2</td>
<td>Gene Regulation in Prokaryotes</td>
<td>Ch. 11</td>
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<tr>
<td>32. Nov 4 F</td>
<td>DISCUSSION 10</td>
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<td><strong>(Problem Set II distributed)</strong></td>
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<tr>
<td>33. Nov 7</td>
<td>Gene Regulation in Eukaryotes</td>
<td>Ch. 12</td>
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<tr>
<td>34. Nov 9</td>
<td>Gene Isolation &amp; Manipulation</td>
<td>Ch. 10</td>
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<tr>
<td>35. Nov 11 F</td>
<td>DISCUSSION 11</td>
<td></td>
<td>Homework Due (8)</td>
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<tr>
<td>36. Nov 14</td>
<td>Gene Isolation &amp; Manipulation</td>
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<tr>
<td>37. Nov 16</td>
<td>Gene Isolation &amp; Manipulation</td>
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<tr>
<td>38. Nov 18 F</td>
<td>DISCUSSION 12</td>
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<td>Homework (9) &amp; <strong>Prob. Set II Due</strong></td>
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<tr>
<td>40. Nov 23</td>
<td>Chromosomal Change</td>
<td>Ch. 17</td>
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<td><strong>Nov 24-25 Thanksgiving Holiday</strong></td>
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<td>41. Nov 28</td>
<td><strong>HOUR EXAM II</strong></td>
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<td>42. Nov 30</td>
<td>Chromosomal Change</td>
<td></td>
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<tr>
<td>43. Dec 2 F</td>
<td>DISCUSSION 13</td>
<td></td>
<td>Homework Due (10)</td>
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<tr>
<td>44. Dec 5 . .</td>
<td><em>Cumulative FINAL EXAM</em></td>
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OVERVIEW OF THE COURSE

This course in genetics has two major themes. One is transmission genetics. This includes the distribution of genetic information into gametes, transmission to the offspring, the interactions of members of gene pairs in the production of a trait, and gene mapping. The emphasis in this section of the course will be the integration of basic concepts and analytic thinking. The readings and lecture material can provide the background and a first level of understanding in genetics.

The other theme deals with biochemical and molecular genetics. This section of the course places emphasis on how genetic information is stored, transmitted, altered and expressed. Knowledge about the molecular mechanisms involved in these genetic processes has generated new approaches to research disease diagnosis and treatment, and applications to agriculture and industry. The material in this section of the course represents a work in progress, and new information is generated on this theme every day.

A comprehensive understanding of the material in this course can be achieved only in conjunction with problem solving. Genetics is an experimental science; working problems gives you experience with the use of scientific reasoning and analytic thinking. Solving the assigned problems should receive a great deal of your attention, and it is fair to say that success in this course depends on acquiring this skill.

In many ways, Bios 220 is different from other biology courses you have taken or will take in the future. Genetics directly engages you in the logic and rationale of science. The best way to learn the principles and mechanisms of genetics is by the practiced use of reason in sorting out facts, choosing some and discarding others, learning the process of deduction, and by designing experiments to test hypotheses. Given the prerequisites for this course, we assume that you are familiar with some basic chemistry and biology. At the earliest opportunity, we urge you to review the sections of your general biology text dealing with genetics and with the structure of organic molecules.

TEXT AND PROBLEM ASSIGNMENTS

The text for this course is: “An Introduction to Genetic Analysis” (11th Edition), by Griffiths, Wessler, Carroll, and Doebley, which the campus bookstore stocks, in several formats.

The textbook is not a novel. But, like the best novels, it is meant to be read, reread and studied. To help you understand the material, homework problems are assigned from the text. Solving the problems conscientiously is the only way for you to learn genetics. Very similar problems will appear on the quizzes. Problems of the same type but not as similar will appear on exams. The textbook contains abbreviated answers to some questions, and the Solutions Manual contains more extensive explanations. It is VERY IMPORTANT that you consult these sources for information ONLY AFTER you have made a serious attempt to do the problems on your own.

The assigned problems will be collected at the end of each discussion section meeting and graded; credit will be awarded only for a complete set of written-out answers. These are for study and practice, and will be used as the basis for discussion in the Friday section meetings.

Two additional Problem Sets are also assigned as homework, to be collected in Discussion and graded; they are composed of problems that are much like examination questions used in recent offerings of this course, and will be distributed in class.

Keeping up with the problems and working out extra problems is the best way to study genetics and prepare for examinations. Keep in mind that while the quizzes and i-clicker questions in class are often multiple choice, the course exams are more like the long answer homework problems. The www.whfreeman.com/iga web site also contains material that will be helpful.

You will need an i>clicker remote for in-class participation. i>clicker is a response system that allows you to respond to questions posed during class, and you will be graded on that feedback and your in-class participation. The i>clicker will be used most days in lecture, including the first day of class. You are responsible for bringing your remote daily, powered and functional. A maximum of 50 points can be earned by responding (correctly) to all i-Clicker questions in class.

Instructions For iClicker unit Registration: To receive this credit, you will need to register your iClicker remote online within the first two weeks of class. To register, go to BlackBoard>Bio220>course tools >iClicker Registration >remote ID and register your unit. The remote ID is the series of numbers and/or letters found toward the bottom of the back of
your i>clicker remote. Note that the campus bookstore has an automated reader for you to use if your serial number has faded. i-Clicker support is available at 866-209-5698; on campus, BB support is available at the ITL (312-996-9824).

**DISCUSSION SECTIONS, QUIZZES AND PROBLEM SETS**

As noted in the syllabus, there are 13 scheduled discussion section meetings. These provide you with an opportunity to ask questions and to go over the assigned problems. The section meetings will also be used to give quizzes and for review sessions. There will be 10-11 unannounced quizzes given in the discussion sections, each worth 10 grade points. Before computing the course grade, the eight highest quiz scores will be combined for a total of 80 points (see below).

**OFFICE HOURS**

The teaching assistant in your discussion section will be available at the Science Learning Center in SES at posted office hours, to help you understand concepts or assist you in problem solving. You may also attend office hours with other teaching assistants if these times are more convenient for you. In fact, you are encouraged to seek help from any and all of the teaching assistants in the course during their office hours, as well as from the instructors during their office hours. The Honors College also offers tutoring (free of charge) in genetics; contact the College office for details. Our experience has been that too few students ask for assistance, and when they do, it is only after they have been overwhelmed. Don’t let this happen to you. If you need help, it is available; just ask.

In addition, Drs. McCutcheon, Morrison, Stone, and Lynch will hold regular office hours as announced in class and posted to Blackboard.

**EXAMINATIONS AND GRADING**

<table>
<thead>
<tr>
<th>Examination</th>
<th>Points</th>
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<tbody>
<tr>
<td>EXAMINATION I</td>
<td>100</td>
</tr>
<tr>
<td>EXAMINATION II</td>
<td>100</td>
</tr>
<tr>
<td>HOMEWORK SETS (10 @ 3)</td>
<td>30</td>
</tr>
<tr>
<td>PROBLEM SET I</td>
<td>20</td>
</tr>
<tr>
<td>PROBLEM SET II</td>
<td>20</td>
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<tr>
<td>QUIZZES</td>
<td>80</td>
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<tr>
<td>i-Clicker credit</td>
<td>50</td>
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<tr>
<td>COMPREHENSIVE FINAL EXAMINATION</td>
<td>200</td>
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<td>---------------------------------------</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>600</strong></td>
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</table>

Exams and quizzes will generally be returned in discussion section. If you believe that a quiz or exam has been graded incorrectly, please return it to your TA along with a written list of specific points to be reconsidered, immediately after class. If you need extra time to review your exam, return the examination to your TA and make an appointment to review it further in your TA’s presence. Likewise, if you are unable to attend discussion class on a day that an exam is handed back, please arrange to check the grading at your TA's convenience and in your TA's presence. For obvious reasons of exam integrity, exams cannot be re-examined if these rules are not followed. Final exams will be available for review with your TA the first two weeks of the Spring semester. Except in case of illness, final exams will not be re-graded after that time.

Letter grades are assigned based on total grade points accumulated throughout the semester. Course grades will be based on the percentage of earned points/600 points:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>85-100%</td>
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<tr>
<td>B</td>
<td>75-84%</td>
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<tr>
<td>C</td>
<td>60-74%</td>
</tr>
<tr>
<td>D</td>
<td>50-59%</td>
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<tr>
<td>F</td>
<td>49-0%</td>
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No make-ups will be given for missed quizzes or hour exams. Students with a valid excuse may have the remaining assignments count proportionately more. For validated missed quizzes, the remaining quiz scores will be proportionally adjusted to 80 points. For a validated missed exam 1 or 2, the cumulative final exam will be worth 300 points. Validation requires documentation by a relevant authority and written approval by Drs. McCutcheon, Morrison, Stone, or Lynch. Those without a valid excuse will receive a score of zero. Acceptable reasons for missing an
exam or quiz are illness (documented in writing by a medical professional who is not a relative), family emergency or event (e.g., funerals, weddings), religious holiday, military service, and university athletic competition. Job-related conflicts are not accepted reasons for dropping an exam or quiz. In all such cases, assemble and provide to the instructor by e-mail a single PDF document, containing a cover letter in which you explain the conflict and make your request for grade adjustment, followed (except in the case of a religious holiday) by scanned copies of the supporting documentation. Your professor will let you know what accommodation will be made via a return e-mail; the dropped item will then be marked in your grade record by an entry of ‘ex’ ‘0.1’. If you know in advance that you have a valid conflict with an examination date, notify your instructors as far ahead of time as possible.

Disability Resource Center:
As reflected in the University of Illinois’ Nondiscrimination Statement and the UIC Chancellor’s statement of Commitment to Persons with Disabilities, UIC strives to maintain a barrier-free environment. To be eligible for accommodations, students apply for services through the Disability Resource Center. Students who require accommodations for access and participation in this course should register with the Disability Resource Center (DRC) and consult Dr. McCutcheon for specific arrangements at the beginning of the term. Please contact DRC at 312-413-2183 (voice), 312-413-7781 (Fax) or http://drc.uic.edu. Students requiring accommodations for exams should reserve space in the DRC as soon as possible because facilities at DRC are limited.

ACADEMIC HONESTY
No acts of cheating will be tolerated in this course. To discourage cheating, samples from each exam will be copied by the graders before they are returned to the students. The penalties for cheating incidents at UIC are severe and may result in dismissal from the university. Those found to be cheating in any way on quizzes or examinations will be given a zero grade for that quiz or examination, and will be referred to the Dean's office for further disciplinary action. Students have been disciplined or dismissed from the University for cheating in Bios 220. This statement constitutes your first warning; there is no second warning.

KEYS TO SUCCESS IN BIOS 220
There are some simple procedures to ensure your success in this course:

1. Attend lectures and discussion sections. The material presented in lectures is a primary source for examination questions, quiz questions, and announcements. It is important that you attend class. Bring your i-clicker to lecture so you can get credit for attendance as well as for answering questions in class.

2. Study the text. The material presented in lectures and the text is the primary source for the course.

3. Take notes. Edit and review your notes on a regular basis. Don’t try to copy down everything the instructor says. Concentrate on the concepts being discussed.

4. Do the assigned problems. Working the end-of-chapter problems, assigned or not, is the only way to assess whether you understand the material presented in the lecture.

5. Do not fall behind. Students who fall behind in this course can find it impossible to catch up. Each week builds on the material of earlier chapters. Therefore, be sure to DO THE ASSIGNED PROBLEMS ON TIME and be sure to master material on a weekly basis!

6. Form a study group. If possible, study with other genetics students. Research has shown that peer teaching/learning is a proven method of learning difficult material. We encourage you to work together on homework problems.

7. Ask questions. Do not hesitate to ask questions in class, in discussion sections, and in office hours. If what the instructor is saying in lecture is not clear, ask for a clarification. The instructor will take your request seriously and will not belittle you or the question. If the answer is long or complex, the instructor may ask to see you after class to discuss the matter. Go to office hours and ask more questions.

8. See your teaching assistant, or any of the other teaching assistants in the course. One of the advantages of attending UIC is the presence of teaching assistants to help you learn the material; see them during their office hours if you need help. In general, students do not take enough advantage of the resources offered in discussion sections or the help available during office hours. Be different; get help.

LECTURERS’ CONTACTS If you need to contact your instructor beyond office hours, send an email to the following addresses: Suzanne McCutcheon, suzanne@uic.edu; Donald Morrison, DAMorris@uic.edu; David Stone, Dstone@uic.edu; Jeremy Lynch, Jlynch42@uic.edu. Please be sure to write in the subject line: ‘BioS220 Student; your name; type of request’.