BSCI 105
Principles of Biology 1
Fall 2015

Instructor
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Office hours by appointment

Lab Coordinator
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1222 HJ Patterson

General Course Objectives
• To introduce the basic principles and properties common to living cells
• To provide a framework for understanding how biological components and pathways interact and function
• To encourage active inquiry and critical analysis
• To apply the principles, techniques, and methods of data analysis to experimental problems

Textbooks
Campbell et al., Biology, Custom edition for UMD 9781269920490 or any text from edition 6 to edition 9

BSCI 105 LAB MANUAL 15 by Kirschtel 9780738075341

Website
(Click on the BSCI 105 Link)
Lectures
Lectures begin promptly at 6:00 PM and will continue until 9:00 PM. We will be using all minutes available for these lectures. You should plan to arrive early and to stay for the full duration of the lecture.

This is a large class. As a courtesy to your fellow students and your instructor, listen quietly during lectures and wait until after the lecture is over before packing up to leave. On those rare occasions where you must leave early, please sit at the end of a row near a door and leave as quietly as you can. Put your coat on out in the hallway.

Smoking (including e-cigarettes), drinking and eating are not permitted in the lecture or the laboratory. For your safety, shirts and shoes must be worn in all teaching facilities; roller blades, sandals or open toe shoes are NOT allowed. Sorry, no pets!! Please turn off your pagers and cell phones when in class. Hats are not allowed during exams.

It is your responsibility to note any changes in the syllabus or other information that are announced in lecture.

Examinations
There will be three mid-term examinations worth 100 pt. each, a 20 pt. genetics paper and a 200 pt. final examination as listed in the lecture outline. You must sit in designated areas during exams. All requests for make-up exams must be made within 24 hours of the missed exam. You must contact me immediately following the missed exam to discuss the possibility of taking a make-up exam. Examinations must be taken at the scheduled time unless a valid, documented excuse (e.g., religious holiday, illness, death in the immediate family, etc.) is presented within 2 days of the missed examination. Please refer to the current edition of the Undergraduate Catalog for the University's policies on makeup examinations (also known as assessments). A single makeup examination is scheduled approximately 5 days after each regular mid-term examination during lecture period. The format of makeup examinations may be different than the original exam. In spite of my best efforts to construct comparable examinations, students taking makeup examinations generally do significantly worse than those taking the regular examination. You are encouraged to take the exam at its regularly scheduled time if at all possible. There is no makeup for makeup examinations. ALL STUDENTS MUST TAKE THE FINAL EXAMINATION DURING THE LAST LECTURE PERIOD. NO EXCEPTIONS! THERE IS NO MAKE-UP FOR THE FINAL EXAMINATION.

In accordance with University policy, we cannot return final examinations, post grades or discuss grades over the telephone. Grades can be obtained by using the ELMS (Black Board) system.

Laboratories
Laboratories will meet weekly. You must attend the laboratory section for which you are registered. Laboratory attendance is required with significant penalties for tardiness and unexcused absences. Laboratory exercises and rules will be discussed at the first lab. If you need to make-up a missed laboratory session, see your TA or Dr. Keller immediately.
Make-up labs will only be made available with a valid, documented excuse (e.g., religious holiday, illness, and death in the immediate family, etc.). No make-up labs will be allowed for "convenience" purposes. Missing four laboratory sessions (excused or unexcused) will result in an “F” for the entire course regardless of performance.

Grades
Lecture: 520 points   Laboratory: 280 points   Course Total 800

Contingent upon satisfactory performance in the laboratory, grades will be assigned on the basis of total points earned by the end of the course. Assume a grading scale of:
>90% = A, 80-89% = B, 70-79% = C, 60-69% = D, <60% = F.
Plus (+) notations only are assigned to letter grades of UMCP students. Final percentages of “X7.5” or higher will receive a "+" notation. No “+” notations will be given for letter grades corresponding to percentages lower than 70%. Percentages will be rounded to the nearest tenth of a percent. There will be no "curve" for assignment of grades. Any adjustments in grading will be made for sound academic reasons only. The last day to drop with a “W” is 11/09/15.

Help
The entire BSCI 105 team stands ready to assist you in any way possible. All you need to do is ask!! You are encouraged to drop in during scheduled office hours of the instructors or to call us to arrange an appointment if that time is unavailable. Your laboratory Teaching Assistant is also a valuable resource and will be giving you his or her office hours during the first laboratory period. In addition, the TA office (1222 HJP) is usually staffed with one or more knowledgeable TA's that may be able to answer your questions as well.

For additional learning aids, there are chapter summaries and study questions at the end of each chapter in the textbook. Although lecture may not directly reproduce the material of a chapter, the chapter summaries and reviews can still be useful learning aids. The Interactive Study Partner CD that comes with your book is highly recommended. If you do not have your own personal computer, several computers are available in 1222 HJP during normal office hours. The Web site described in your book is also a useful resource.

Hints for Academic Success

- Attend all lectures and take notes.
- Learn to take good notes. Lecture notes should include the major points presented by the instructor. Resist the temptation to generate a verbatim text of the lecture. Listen to what is presented and extract the major points and concepts. If one of us is taking the time to write something down on the overhead then this is a hint that you should be doing the same.
- Copy your lecture notes into a second notebook within 24 hours of the lecture. If your notes are incomplete or unclear, make an audio tape or come see us for clarification at the next lecture or office hour.
• The readings in the book are meant to assist you in learning the material presented in
lecture. Read over the material in the assigned readings before a lecture and again
after the lecture. If you 'highlight' text, do it after the corresponding lecture. That way
you will be inclined to focus in on what has been emphasized in the lecture.
• When preparing for an examination, concentrate your efforts on the lecture notes.
THE EXAMS ARE BASED ON THE LECTURE MATERIAL.

There is no substitute for effort. You should be spending at least 12 hours per week
outside of class working on BSCI 105 material and assignments.

If you have difficulty taking notes, taking examinations, identifying important concepts,
etc. visit Learning Assistance Services (Rm. 2201, Shoemaker Bldg.; 314-7693). The
LAS staff offers a variety of relatively painless help workshops.
Do not hesitate to ask any of us for assistance. We are here to help you.

Other suggestions:
You will need to learn a great deal of information for this course and will probably have
to add to your vocabulary up to 500 new words over the course of the semester. Part of
any science is learning the language. Memorize a word and its definition or a fact but
don't forget to understand the process it is part of before you go on. Think about how a
fact fits into a concept and how the concept is part of a bigger picture.

One way to do this is talk about what you have learned in a study group. You will find
that each of you may learn and understand some things easily but other concepts are
difficult. Many times the diversity of a group means that there may be one person who
does understand a concept and can explain to the others. If nobody does, then it's time to
come see the instructor.

One more thought about studying: DON'T LEAVE IT UNTIL THE NIGHT BEFORE
AN EXAMINATION. There is too much material in this course to learn in one night or
even one weekend. This is why the study groups can be so useful. The key is come
prepared to each study group meeting. By meeting once a week, you are forced to review
the material regularly. Studying for exams will be much easier if you do this and likely
will be reflected in your grade.

CORE
Many of you have chosen this course as part of your CORE Liberal Arts and Science
Studies Program, the general education portion of your degree program. CORE
Distributive Studies courses are designed to ensure that you will be exposed to several
academic disciplines and the way they create and analyze knowledge about the world
around you. A faculty and student committee approved this CORE Distributive Studies
course because it will introduce you to ideas and issues that are central to a major
intellectual discipline and because it promises to involve you actively in the learning
process. Please take advantage of the opportunities this course offers you.
Academic Dishonesty

Academic dishonesty will not be tolerated! The Code of Academic Integrity is described in the Undergraduate Catalog. Definitions of academic dishonesty are:

- **CHEATING:** intentionally using or attempting to use unauthorized materials, information or aids in any academic exercise.
- **FABRICATION:** intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
- **FACILITATION:** intentionally or knowingly helping or attempting to help another to violate any provision of the Code of Academic Integrity.
- **PLAGIARISM:** intentionally or knowingly representing the words or ideas of another as one’s own in any academic exercise.

ALL WRITTEN EXERCISES FOR THIS COURSE ARE TO BE THE INDEPENDENT WORKS OF THE SUBMITTING STUDENT.

Commercial Lecture Notes

I encourage you to share and discuss your personal notes and recording of lecture or laboratory presentations with your fellow students. Any commercial use of this material or of any of the lecture handouts however is prohibited. The faculty take no responsibility for the material found in commercially available notes and cannot guarantee their accuracy. If purchased, these notes should not be used as a substitute for taking your own notes.

Accommodating Students with Disabilities

The Disability Support Service (DSS, a division of the Counseling Center) is available to assist students and faculty in determining and implementing appropriate academic recommendations. A booklet, Reasonable Accommodations, is available with pertinent information. DSS can be contacted at 314-7682. If you have a disability, it is your responsibility to let us know so that we can make appropriate accommodations. Please let us know as early as possible.

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<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>1</td>
<td>9/1</td>
<td>Welcome/ Facts of Life</td>
<td>Ch 1:1-11; 18-24</td>
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<td>2</td>
<td>9/1</td>
<td>Chemical Context of Life</td>
<td>Ch 2: 30-43</td>
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<td>3</td>
<td>9/8</td>
<td>Bonds, Functional Groups, and Water</td>
<td>Ch 3 &amp; 4: 46-66</td>
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<td>4</td>
<td>9/8</td>
<td>Carbohydrates &amp; Lipids</td>
<td>Ch 5: 68-77</td>
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<td>5</td>
<td>9/15</td>
<td>Proteins: composition and structure</td>
<td>Ch 5: 77-86</td>
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<td>6</td>
<td>9/15</td>
<td>Proteins continued &amp; Nucleic Acids</td>
<td>Ch 5: 86-89</td>
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<td>7</td>
<td>9/15</td>
<td>A Tour of the Cell</td>
<td>Ch 6: 94-122</td>
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**LECTURE SCHEDULE**

*Fall 2015*
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<td><strong>Unit II: The Cell Economy</strong></td>
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<td>8</td>
<td>9/22</td>
<td>a) Membrane Structure</td>
<td>Ch 7: 125-130</td>
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<td>b) Membrane Transport</td>
<td>Ch 7: 131-139</td>
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<td>9</td>
<td>9/22</td>
<td>Membrane Transport</td>
<td>Ch 7: 131-139</td>
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<td>10</td>
<td>9/29</td>
<td><strong>EXAM 1: Lectures 1-8a</strong></td>
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<td>11</td>
<td>10/6</td>
<td>Anabolism, Catabolism &amp; Free Energy</td>
<td>Ch 8: 142-148</td>
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<td>12</td>
<td>10/6</td>
<td>ATP, Enzymes, and Metabolic Control</td>
<td>Ch 8: 149-159</td>
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<td>13</td>
<td>10/6</td>
<td>Principles of Energy Harvesting</td>
<td>Ch 9: 162-167</td>
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<td>14</td>
<td>10/13</td>
<td>Aerobic Cellular Respiration</td>
<td>Ch 9: 167-182</td>
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<td>15</td>
<td>10/13</td>
<td>Respiration Continued</td>
<td>Ch 9: 167-182</td>
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<td>16</td>
<td>10/20</td>
<td><strong>Exam 2: Lectures 8-15</strong></td>
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<td>17</td>
<td>10/27</td>
<td>Light and the Chloroplast</td>
<td>Ch 10: 185-189</td>
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<td>18</td>
<td>10/27</td>
<td>Photosynthesis</td>
<td>Ch 10: 190-203</td>
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<td><strong>Unit III: Information Processing in the Cell</strong></td>
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<td>19</td>
<td>11/3</td>
<td>DNA as Genetic Material</td>
<td>Ch 16: 305-310</td>
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<td>20</td>
<td>11/3</td>
<td>Connection between Genes &amp; Proteins</td>
<td>Ch 17: 325-331</td>
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<td>21</td>
<td>11/10</td>
<td>Transcription and Translation</td>
<td>Ch 17: 331-348</td>
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<td>22</td>
<td>11/10</td>
<td>Control of Gene Expression/ Oops</td>
<td>Ch 16: 310-323</td>
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<td>Ch 17: 344-346</td>
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<td>Ch 18: 351-364</td>
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<td>23</td>
<td>11/17</td>
<td><strong>Exam 3: Lectures 17-22</strong></td>
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<td><strong>Unit IV: Cell Cycle and Genetics</strong></td>
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<td>24</td>
<td>11/24</td>
<td>The cell cycle and Its Regulation</td>
<td>Ch 12: 228-243</td>
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<td>25</td>
<td>11/24</td>
<td>Meiosis and Sexual Lifecycles</td>
<td>Ch 13: 248-260</td>
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<td>26</td>
<td>12/1</td>
<td>Genetics: Principles and Application</td>
<td>Ch 14: 262-281</td>
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<td>27</td>
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<td>Chromosomal Basis of Inheritance</td>
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<td><strong>Exam 4: Unit IV and Cumulative</strong></td>
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