Pima County Community College
East Campus

RathmanBio156INCRN 30019SUM 2010
Intro Biology Allied Health
June 1st – July 6th

Location / Time:
Pima CC East Campus – Room: E7 - 707
Monday, Tuesday, Wednesday, Thursday: 12:35pm – 4:55pm

Instructor:
Robin Rathman, PhD
Adjunct Faculty Office

Email: rrathman@pima.edu

Phone: 520-206-7645; Voice Mail: 206-4699, mailbox # 8701

Class website: http://ecc.pima.edu/~rrathman

Course Description
Introductory Biology for Allied Health: Introduction to biology for the health professions. Includes principles of science, scientific measurement and laboratory techniques, chemistry of life, cell anatomy and physiology, cellular reproduction, patterns of inheritances and human tissues.

Information
IN is the integrated version of the course with the lecture and lab taught simultaneously.

Prerequisites
None

Recommendation: Successful completion of college or high school chemistry is recommended before enrolling in this course.

Performance Objectives
Upon completion of the course, the student will be able to do the following:

1. Perform activities to demonstrate improvement in the general education goals of communication and critical thinking.
2. Demonstrate biology study skills necessary for anatomy and physiology.
3. Identify key components of the scientific method and apply the scientific process.
4. Demonstrate the ability to safely use biological laboratory techniques.
5. Demonstrate the correct use of a light microscope, metric tools for measuring length, mass, and volume, and laboratory safety skills.
6. Explain the basic chemical processes of life.
7. Describe the four categories of “macromolecules” and why each is important for cellular structure and functions.
8. Explain how enzymes function.
9. Describe the structure of the cellular organelles and how each functions.
11. Describe the cell cycle and the purposes, products, and processes of mitosis and meiosis.
12. Explain step by step the processes of transcription, translation, and DNA replication.
13. Explain how genes are expressed and inherited.
14. Describe the principles of Mendelian Genetics.
15. Describe and give examples of the primary human tissues, and where in the body each can be found.

Course Outline:

I. Principles of Science  
   A. Scientific process and scientific experimentation  
   B. Analyzing and reporting results

II. Scientific Measurement and Laboratory Techniques  
   A. Light microscopy  
   B. Metric measurements  
   C. Laboratory safety skills

III. Chemistry of Life  
   A. Basic General Chemistry  
   B. Macromolecules  
      1. Carbohydrates  
      2. Lipids  
      3. Proteins  
      4. Nucleic Acids

V. Cell Anatomy and Physiology  
   A. Cell membrane and transport mechanisms  
   B. Organelle structure and function  
      1. Nucleus  
      2. Ribosomes and protein synthesis (transcription and translation)  
      3. Endomembrane system  
      4. Cytoskeleton

VI. Cellular Reproduction  
   A. Cell cycle  
   B. DNA replication  
   C. Mitosis  
   D. Meiosis

VII. Patterns of Inheritances  
   B. Mendelian genetics

VIII. Human Tissues  
   A. Epithelium  
   B. Connective tissue  
   C. Muscular tissue  
   D. Nervous tissue

Required Text Book(s):  
- Cell and Molecular Principles -- Biology 156 (package includes a CD). The textbook is available in the East Campus bookstore.(optional)  
- Lab Manual (in bookstore)  
- Course Website: http://ecc.pima.edu/~rrathman  
- Colored Pencils, Markers or Pens for use in coloring lab diagrams
Assignments

Assignments will be made in class or on the class website. It is your responsibility to check the website frequently for assignments and due dates. **Formal reports must be typewritten.** Informal lab assignments/answers and data collection may be hand written, but must be legible. Assignments must be turned in at the beginning of class or they will be considered late and will be penalized 10%. An assignment that is turned in the next class day of the due date and time will be penalized 20%. An assignment that is 2 class days late will be penalized 40%. Assignments will not be accepted after the second class day.

Homework must be typed/word-processed. Homework will be graded promptly and returned to the student.

Makeup Policy

If you have an emergency that requires you to miss class or be late for class, and you wish to discuss making up the material or modifying the due date for relevant assignments, you must immediately notify me by calling my phone 520-7513951 or by email (mdamadzadeh@pima.edu) before class begins. If I do not receive a message from you before class begins you relinquish the right to request make-up work or alternate due dates for assignments. (You will be allowed to make up work for no more than two excused, emergency situations that cause you to be late for class.) NOTE: **Labs can not be made up. If you miss a lab you will be given zero points for that day.**

Incomplete “I” Grades

- “I” (incomplete) grades will not be given.

Student Withdrawal “W” Grades

Students may withdraw from class without instructor permission and without incurring any grade penalty until **the date that college permitted.** Students who fail to withdraw themselves by the withdrawal deadline and quit attending class, remain on the active class roster and will receive a grade of “F”.

Attendance Policy

Due to the nature of the course, attendance is critical. Information provided in lecture will be directly related to class assignments/exams. Although role is not taken, attendance to every class is strongly recommended.

Ethics, Morals and Opinions

During this course we will be discussing techniques and topics that some people may deem controversial. However, our discussions are limited to the scientific bases of these topics. I will leave my opinions out of the classroom and I ask you to do the same.

Classroom Conduct

I expect you to turn off or silence all pagers, cell phone etc. while in the classroom. Please be courteous to your fellow students when arriving late or leaving early from class. Additionally, some class activities involve anonymous peer reviews. Students speaking or acting derogatory about a review will be asked to leave the class. Pima Community College also requests:

- Because of insurance limitations, **non-registered visitors are not allowed at class** sessions
- Possession of drugs, alcohol or firearms on college property is illegal
- **Eating**, smoking, **drinking**, and soliciting are **not allowed** in classrooms. Any food or drink must remained sealed and in a secure closed backpack. Visible items will be removed from the classroom.
- Pets, telephones, pagers and other electronic devices that distract students are not allowed in classrooms.
Closed toe shoes are mandatory in the lab section of the classroom. Students not abiding to the dress code will be asked to leave.

Students creating disturbances that interfere with the conduct of the class or the learning of other will be asked to leave.

ADA Compliance
Pima Community College offers reasonable academic accommodations to qualified students with appropriate disability documentation. Academic accommodations will be made based on eligibility determination by the Disabled Student Resources office (DSR). To request a reasonable academic accommodation, students must be registered with the campus DSR office. Campus DSR offices can be reached by call 206-4500.
Pursuant to Arizona law (A.R.S. §13-3620), College personnel, including faculty, staff, and administrators, who learn in the course and scope of their employment that a minor (defined as under 18 years of age) has been the victim of physical or sexual abuse, are required to report this information immediately to law enforcement.

Academic Integrity:
Pima Community College considers violations of scholastic ethics, including plagiarism, as serious offenses, which may result in failure of an assignment, the course, or possible expulsion.
- Unintentional plagiarism is the most frequent breach of the Code of Conduct made by students. A student will be considered in violation of this component of the Code of Conduct if (s)he:
  - Represents the work of others as his/her own
  - Uses or obtains unauthorized assistance in any academic work
  - Give unauthorized assistance to another student.
  NOTE: Without my expressed consent, it is not acceptable to turn in a lab report if you were not present when the data were collected. Also, though it is fine to discuss your homework or labs with your colleagues, it is not okay to turn in identically or nearly identically phrased assignments.
- All work done for this class must be your own. For assignments, you may use work from books and other materials if properly cited. Copying from any source without proper reference is considered plagiarism.

Assessment:
In order to determine whether this course is meeting its above-stated objectives, a variety of classroom assessment techniques will be used. You will be assessed on your ability to communicate both orally and in writing, think critically and demonstrate global awareness.
- Exams
  - There will be two major exams given in class that are designed to assess your understanding of the material covered in each section of the course (i.e., these exams are not cumulative).
  - Success on these exams will require a review of your graded and corrected quizzes, labs, homework and other activities, as well as a review of your lecture and other study materials.
  - Each exam is worth 100 points (approximately 10% of your final grade). There will be no make-up exams.
- Quizzes
  - Be prepared each class day to take a quiz consisting of a small number of questions from the material covered the previous class period.
The quizzes will be given ONLY at the beginning of class, so you will miss the quiz if you are late.

Quizzes will be collected, wrong answers marked, and returned. You are expected to check and correct your own quiz by looking up answers in the text, lecture material or other materials. Corrected quizzes will be placed in the portfolio. Half credit will be given for corrected answers (if there is more than 40% correct answers in the quiz) that include an explanation of why that answer is correct and where you found the correct answer. (Just marking the correct answer will not earn points.)

Your two lowest quiz scores (including scores of ‘0’ for quizzes missed due to tardiness or absence) will be dropped.

- **Lab activities:**
  - Lab activities are to be completed and turned in for correction at the end of each session.

- **Major project/Activity**
  - An investigative case-based learning activity will be assigned for you to research. The work product will demonstrate your mastery of the topic. A presentation will be made during the allotted time in the course. Students may work in groups of 2-3. Each group student must speak during the 10-minutes presentation to the class.

- **Tissue practical exam**
  - You will be asked to identify tissues using a microscope, and be able to list their function and locations in the body.

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### Grading Procedures and Policy

<table>
<thead>
<tr>
<th>Grading Summary:</th>
<th>Your total percentage will be assigned a grade as follows:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (2 – 100 pts each)</td>
<td>200 pts</td>
</tr>
<tr>
<td>Quizzes – 5-10 pts each</td>
<td>100 pts A = 90 - 100 %</td>
</tr>
<tr>
<td>Lab activity (5-10 pts each)</td>
<td>150 pts B = 80 – 89 %</td>
</tr>
<tr>
<td>Powerpoint Presentation</td>
<td>100 pts C = 70 – 79 %</td>
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<tr>
<td>Tissue practical exam</td>
<td>100 pts D = 60 – 69 %</td>
</tr>
<tr>
<td>Homework</td>
<td>50 pts F = 0 – 59 %</td>
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<tr>
<td><strong>Total</strong></td>
<td>700 pts</td>
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</tbody>
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Course schedule may be altered by the instructor. The instructor reserves the right to make changes to the syllabus and will notify students of those changes in class.
# BIO 156 Topics and Laboratory Schedule
## Summer 2010 ~ East Campus

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab Topic</th>
<th>Lab exercise</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/1</td>
<td>NO LAB</td>
<td></td>
<td>pp. 1-11</td>
</tr>
<tr>
<td>6/2</td>
<td>Scientific Method</td>
<td>1</td>
<td>pp. 23-39</td>
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<td></td>
<td></td>
<td>Appendix E</td>
</tr>
<tr>
<td>6/3</td>
<td>Atoms,Molecules &amp; Models</td>
<td>2 &amp; 3</td>
<td>pp. 42-47</td>
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<td></td>
<td></td>
<td></td>
<td>Appendix B</td>
</tr>
<tr>
<td>6/7</td>
<td>Biomolecules Part 1</td>
<td>4</td>
<td>pp. 47-51</td>
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<td></td>
<td></td>
<td></td>
<td>Appendix C</td>
</tr>
<tr>
<td>6/8</td>
<td>Biomolecules Part 2</td>
<td>5</td>
<td>Appendix A</td>
</tr>
<tr>
<td>6/9</td>
<td>Metrics and Measurement</td>
<td>6</td>
<td>pp. 62-79</td>
</tr>
<tr>
<td>6/10</td>
<td>Diffusion and Osmosis</td>
<td>8</td>
<td>pp. 39-41</td>
</tr>
<tr>
<td>6/14</td>
<td>Acids, Bases, pH, and Buffers; <strong>Exam 1</strong></td>
<td>7</td>
<td>pp. 51-53</td>
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<tr>
<td>6/15</td>
<td>Enzymes</td>
<td>9</td>
<td>pp. 53-56;</td>
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<td></td>
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<td></td>
<td>pp. 100-105</td>
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<tr>
<td>6/16</td>
<td>DNA Extraction</td>
<td>10</td>
<td>pp. 81-95</td>
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<tr>
<td>6/17</td>
<td>Microscopy (The Cell)</td>
<td>12</td>
<td>pp. 95-100;</td>
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<td></td>
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<td></td>
<td>1032-1037</td>
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<tr>
<td>6/21</td>
<td>Mitosis and Meiosis</td>
<td>11</td>
<td>pp. 115-124</td>
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<tr>
<td>6/22</td>
<td>Tissues</td>
<td>13</td>
<td>pp.124-135</td>
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<tr>
<td>6/23</td>
<td>Tissues</td>
<td>13</td>
<td>pp. 136-138</td>
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<tr>
<td>6/24</td>
<td>Tissues</td>
<td>13</td>
<td>pp.138-141</td>
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<tr>
<td>6/28</td>
<td>Tissues</td>
<td>13</td>
<td>pp. 141-144</td>
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<tr>
<td>6/29</td>
<td>Tissues; <strong>Exam 2</strong></td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>6/30 – 7/1</td>
<td>PowerPoint Presentations</td>
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<tr>
<td>7/6</td>
<td>Final Exam</td>
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Presentation Requirements

**General:**
Groups may consist of only 2-3 individuals. Individuals may request to work alone (with instructor approval).
Each student must contribute to the project, carry their share of the workload, and speak during the presentation. Students will be graded accordingly.
Presentations are to be in PowerPoint format and be about 10 minutes long.
Presentations are to include a title slide, an outline slide, necessary pictures (graphs, tables, diagrams etc.), a summary slide, and a source slide.
Students must hand in a 4 slides per sheet handout to the instructor before the presentation begins.

Audience members are expected to give presenters their full attention, take notes if need be, to ask applicable questions, and be respectful. A quiz will be given over all the student presentations.

**Presenters:**
Students should be on time and prepared to present. Each partner should know ahead of time which slides they will be presenting.
Students should stand at the front of the class and speak to the entire class in a clear, audible voice.
Students will be docked for unprofessional conduct (examples: unprepared, arguing, inappropriate conduct, disrespect etc.)
Presenters should be ready for questions following the end of the presentation.

**Presentation:**
PowerPoint slides should be easily read. Text and background colors should not blend and be easy on the eye.
Text should be 24 point font or greater.
Slide transitions and sound effects should be used sparingly.
All diagrams, graphs, tables, and photos should be labeled and include a source.
Animations, movies, and images may be helpful in a presentation.
Slides should be a general outline. **Students will be docked for strictly reading text off a slide.**

Information sources should be credible. Textbooks and websites ending in .edu and .gov. are suggested. This is a learning environment for fellow students. Any misinformation in the presentation will be cause for the instructor to stop the presentation and correct the error.

**Title slide:**
Should include the title of the presentation, topic, presenter’s names and any other necessary information.

**Introduction:**
Group members should introduce themselves and their topic. The first few slides should give the audience the appropriate background knowledge and explain the topic’s relevance. Introductions should be interesting and draw the audience’s attention. Questions to the audience, personal stories, current events, world or historical examples, quizzes, and physical objects are recommended.

**Body:**
Presenters should describe the topic and how knowledge gained in class can be applied to the topic. The audience should come away with further knowledge. Additions to the PowerPoint are recommended.
Suggested are animations, flow charts, tables, graphs, images, micrographs, movies, diagrams, websites, and news articles.

**Summary:**
This slide should highlight the introduction and body highlights. It is used to remind the audience of what they just learned.

**Source:**
This slide(s) will list all the sources used to create this presentation. It should list all sources of information and how to relocate it if need be. Sources are, but not limited to: textbooks, general books, websites, interviews, and magazines. This slide is not read to the audience, but is there if the audience requests a source.
Acknowledgment of Receipt of Syllabus

Please sign and return the following for **BIO 156 IN: CRN-30019**.

Students: Initial each of the following to which you agree.

_____ I have received my syllabus, which includes the course objectives, policies, requirements and schedule

_____ I have read and understand all of the syllabus policies and requirements.

_____ I have no objection to receiving phone calls from the instructor at my home phone number.

_____ I have no objection to receiving phone calls from the instructor at my cell phone number.

_____ I have no objection to receiving phone calls from the instructor at my work phone number.

_____ I have no objection to receiving email from the instructor.

_____ I give permission for my instructor to e-mail any grades and materials associated with my student record for this course during this semester to the email address listed below.

Student information:
Signature: ______________________________________________________________

Name: ________________________________________________________________

(Please print) __________________________________________________________

ID number: ____________________ Home phone: __________________________

Cell phone: ____________________ Work phone: __________________________

Email address: ________________________________________________________

______________________________________________________________

PimaCommunityCollege
East Campus
Student Feedback Form

| Class information: Biology 156IN CRN 30019 M.T.W.Th 12.35pm-4:55 pm |
|---------------------------|-----------------|
| Semester: Summer 2010 | Course: Bio 156IN |
| Instructor: R. Rathman | Email: rrathman@pima.edu |
| Email: 206-7645  |

<table>
<thead>
<tr>
<th>Student:</th>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>City:</td>
<td>State:</td>
</tr>
</tbody>
</table>

This information is being provided to inform you of your progress in this course. If you have any questions or concerns, please contact me.

___ You are doing satisfactory work at this stage of the semester.

___ You are doing acceptable work at this stage of the semester; there are some areas where you can improve. Refer to comments below.

___ You are doing unsatisfactory work at this stage of the semester. Refer to comments below.

Comments: General class conduct
- Good attendance
- Poor attendance
- Excessive absenteeism (# ______
- Unprepared for class
- Good participation
- Low participation
- Personal issues
- Poor attitude
- Disruptive behavior
- Tardiness

Quality of assignments and meeting course requirements
- Requirements completed to date
- Missing or incomplete assignments
- Missed exams
- Low grades
- Good quality of work submitted
- Substandard quality of work submitted
- Performing well on tests
- Performing poorly on tests
- Test scores:
  - Reading
  - Writing
  - Math
- Attending regularly but not making satisfactory progress
- Struggling to keep pace with the class

Recommendations:
- Make use of Tutors
- Take notes in class
- Improve study / practice
- Make-up exam
- Make an appointment w/instructor
- Take study skills course*
- Improve time management*

* see advisor to register for a study skills workshop

Instructor’s Signature________________