BICH 303 Spring 2017
Elements of Biological Chemistry

M,W,F 1:50 PM – 2:40 PM

Room 107 Biochemistry & Biophysics Bldg

Dr. Tim Devarenne
Office: N218A NMR Building, http://aggiemap.tamu.edu/?bldg=1525
Office hours: Tues, Thrs 1 PM – 2 PM, or by appointment or drop-in.
Phone: 862-6509
email: tpd8@tamu.edu

Class Web Page: http://tamuweb.tamu.edu/faculty/tpd8/BICH303/index.htm

The class web page contains lecture notes, answers to quizzes and exams, and practice exams and should be checked often for lecture note updates.

Textbook:

Course Description:
Biochemistry is the study, at the molecular level, of the processes that occur within the cells of living organisms. By understanding the structure and function of proteins, nucleic acids, carbohydrates and lipids we will strive to understand how cells function to produce and use energy.

Prerequisites:
CHEM 222 (Elements of Organic & Biological Chemistry) or equivalent; non-biochemistry major.

Objectives:
Teaching. I hope that after this class you will have a fundamental understanding of the principles of biochemistry. My teaching style is to ask questions during the lecture which will hopefully make you think critically about the subject matter. Also, feel free to ask questions at any time.

Learning. Your objective should be to obtain the best grade that you can in the class. This will not come easy as biochemistry is a topic that cannot be learned in a few “cramming sessions”. Come to class prepared by reading the text ahead of time. In addition have some questions to ask.
Quizzes/Exams:

Grades will be determined from the scores on 3 in-class quizzes, 3 in-class exams, and a final exam (2 hrs.). Quizzes and exams will be multiple choice and short answer questions. A Scantron sheet is required for all in-class exams.

Schedule:
Quiz #1: Friday January 27
Exam #1: Friday February 10
Quiz #2: Friday February 24
Exam #2: Friday March 10
Quiz #3: Friday March 31
Exam #3: Wednesday April 12
Final Exam: Monday May 8, 3:30 PM – 5:30 PM

Extra Credit:
The iClicker2 classroom response system is an electronic, interactive, wireless response system allowing students to answer in-class questions. The system will be used to collect a response from all participating students to questions presented to the class. Students will be given extra credit points based on participation and correct answers. Up to 29 points of extra credit (1/2 of a grade) will be the maximum points allowed for full participation and full correct answers. Lower levels of points will be awarded based on level of participation and amount of correct answers. A minimum of 5 points of extra credit can be obtained for full participation and no correct answers. Register your iClicker2 at https://www1.iclicker.com/register-clicker/ using your UIN.

Grades:
Your grade will be determined based on in-class quizzes and exams, the final exam, and iClicker extra credit points. All grades will be posted on eCampus:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>3 x 25 = 75 points</td>
</tr>
<tr>
<td>Exams</td>
<td>3 x 100 = 300 points</td>
</tr>
<tr>
<td>Final Exam</td>
<td>1 x 200 = 200 points</td>
</tr>
<tr>
<td>Total</td>
<td>= 575 points</td>
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</tbody>
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A total of 29 extra credit points are available through participation in the iClicker system.

Grade distribution:
A = 90 – 100% (≥ 515 pts)
B = 80 – 89% (458 – 514 pts)
C = 70 – 79% (400 – 457 pts)
D = 60 – 69% (342 – 399 pts)
F = 59% or less (< 342 pts)
Attendance - Exam/Quiz Make Up

Make ups for exams and quizzes will be given only in cases of officially recognized absences as defined by the current Texas A&M University regulations, see http://student-rules.tamu.edu/rule07. You will be required to make up exams and quizzes as soon as possible, preferably the Monday after the exam. No early exams or quizzes will be allowed.

Make up for illness: If you miss an exam or quiz due to illness you must: (1) notify Dr. Devarenne of your absence within 48 hours of missing the exam or quiz, (2) work out the time with Dr. Devarenne for which the make-up will be taken, and (3) provide official documentation for the excused absence. Upon rescheduling your make-up, it is YOUR responsibility to show up on time and at the location decided upon.

Make up for University excused trips: For all University excused trips (i.e. medical school interviews, ROTC/military trips, University club trips, etc.) you must: (1) notify Dr. Devarenne of your absence at least one week prior to missing the exam or quiz, (2) work out the time with Dr. Devarenne for which the make-up will be taken, and (3) provide an official letter stating the reason for your absence. Upon rescheduling your make-up, it is YOUR responsibility to show up on time and at the location decided upon. If you miss your make-up, the grade will be recorded as a zero.

Recitation Classes:

Two recitation classes have been set up for the following times:
- Tuesdays, 7:00-7:50 PM, room 107 Bio/Bio
  - Students with last names A-M attend
- Thursdays, 7:00-7:50 PM, room 107 Bio/Bio
  - Students with last names N-Z attend

Recitation classes will be for the benefit of you. These classes are designed to reinforce the material presented in the lecture classes. Recitation classes are on Tuesday and Thursday evenings. Each class is taught by the class teaching assistant (TA). During the class the TA will spend the first part of each class summarizing the lecture material from the previous week, answer any of your questions, and give a short quiz at the end of each class. The quizzes will not count toward your final grade. If you cannot attend your assigned recitation, please attend the other one.

The first recitation classes are Tuesday, January 24 and Thursday, January 26.

Recitation Teacher (TA):
Hem Thapa, hrt2369@tamu.edu, office: N220A in the NMR Building
**Schedule:** Quiz and exam dates are firm but lecture topics on a given day may change depending on our speed of covering topics.

<table>
<thead>
<tr>
<th>Week of</th>
<th>Topic</th>
<th>Chapter</th>
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</thead>
</table>
| January 18    | Cellular Organization  
Properties of Water, Acid/Base Chemistry  
Amino Acid Structure and Properties | 1       |
|               |                                                                      | 2       |
|               |                                                                      | 3       |
| January 23    | Non-covalent Interactions  
Free Energy                                                                 | 2       |
|               | **January 27 - Quiz #1**                                             | 1, 2, 3 |
| January 30    | Protein Structure  
Protein Purification                                                      | 4       |
|               |                                                                      | 5       |
| February 6    | Enzyme Kinetics                                                      | 6       |
|               | **February 10 - Exam #1**                                            | 1 - 6   |
| February 13   | Enzyme Kinetics  
Enzymes: Mechanisms of Control                                        | 6       |
|               |                                                                      | 7       |
| February 20   | Membranes: lipids and proteins                                        | 8       |
|               | **February 24 - Quiz #2**                                            | 6, 7, 8 |
| February 27   | DNA: structure and replication                                        | 9, 10   |
| March 6       | RNA: transcription and translation  
Nucleic acid techniques                                                   | 9, 11, 12 |
|               |                                                                      | 13      |
|               | **March 10 - Exam #2**                                                | 6 - 13  |
| March 13      | **No Class - Spring Break**                                          |         |
| March 20      | Metabolism  
Sugar Structures & Glycolysis                                      | 15      |
|               |                                                                      | 16, 17  |
| March 27      | Carbohydrate metabolism  
TCA cycle                                                                       | 16, 18  |
|               |                                                                      | 19      |
|               | **March 31 - Quiz #3**                                                | 15 – 19 |
| April 3       | Electron transport and oxidative phosphorylation                       | 20      |
| April 10      | Lipid metabolism                                                      | 21      |
|               | **Wednesday April 12 - Exam #3**                                      | 15 - 21 |
|               | **April 14 – No Class – Reading Day**                                  |         |
| April 17      | Photosynthesis                                                        | 22      |
April 24 | Nitrogen metabolism | 23
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May 1 | Nitrogen metabolism/Review Session | 23
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May 8 | Final Exam, 3:30 PM - 5:30 PM | Topics will be announced prior to exam

**Cell Phone Use**

I consider texting in class to be both rude and evidence that you are not paying attention, and hence not putting in maximal effort to master the material. I am less inclined to give a student the ‘benefit of the doubt’ when grading ambiguous answers if that student has not been trying hard to master the material. It is best to have your phones off during class. If there is a possibility that you will need to respond to an emergency call during class, give the caller the phone number of the departmental office (979.845.5032) and the message will be delivered as appropriate. Similarly, we will be notified if a “Code Maroon” warning is issued that affects the class. Cell phones MUST be packed away and completely ignored during quizzes and tests. Do not allow them to produce an audible ringtone at any time during class or exams.

**The Americans with Disabilities Act (ADA)** is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit [http://disability.tamu.edu](http://disability.tamu.edu).

**Academic Integrity**

An Aggie does not lie, cheat, or steal or tolerate those who do. Academic integrity is an important issue for students, faculty, staff and administrators at Texas A&M. Academic misconduct, a violation of the Texas A&M Honor System, involves any of the following: cheating, fabrication, falsification, multiple submission, plagiarism, and complicity. Visit the Honor System web page, Academic Integrity, for more information and examples of each of the violations. [http://aggiehonor.tamu.edu](http://aggiehonor.tamu.edu/).