LISTEN TO TUTORIAL LN00 IN THE RAMCT LINK “WEB LINKS”!

Instructor: Aaron Sholders Ph.D.
Phone: 970-491-7916
E-mail: aaron.sholders@colostate.edu
Office: MRB 231
Office Hours: Office hours would be a little strange for an online course considering that many of your are out of state or a significant distance from Ft. Collins. As such I will not be holding “office hours” per se. I will however make myself as available as possible via other lines of communication.

The best way to get a hold of me for questions will be via email. I will try and respond to these as quickly as I can. I probably will respond within 24 hours during the week BUT more sporadically during the weekend. If you email me during the weekend I likely will respond by Monday morning. I do ask that you use a subject heading like “BC351-801 xxxx” where xxxx can represent anything you want. This way I know what the email is in regards to. Finally if you are in Ft. Collins and would like to meet face-to-face write me an email and we can set up a time to meet.

Your Email: I will be sending weekly emails to keep you on track. The email account I will send these messages to will be the one you have currently registered with Colorado State University. If you have not received an email from me by the 1st day of the class then you are likely not checking the correct account. If you don’t know what email account you should check visit the following URL: http://www.acns.colostate.edu/Services/Email OR https://eagle.colostate.edu/spam/.

Prerequisites: 1 semester of Organic Chemistry and 1 semester of College Biology

Textbook: Lehninger Principles of Biochemistry, 5th edition, by Nelson and Cox, W.H. Freeman Publishers. The book can be purchased either online via CSU bookstore or other online retailers. An online version exists as well for about half the price.

Course objectives: Objective #1: You should be able to think critically about Biochemistry and be able to assess and interpret biochemical data.

Biochemistry is a science concerned with the question “how does this work? Or how does it do that?” Of course this is at a molecular level and as such can be very hard to visualize. Therefore to be a good Biochemist you need
to know how to look at, interpret and critically assess data. I hope to help you in this endeavor.

**Objective #2:** You should be able to define and recognizes major concepts and principles in Biochemistry.

You must understand that the field of Biochemistry is so large and so complex that no one could ever understand and retain it all. I am going to help you define some Biochemical concepts and I am going to try to stick to the principles. Understand though that I will use very detailed examples to help establish those principles for you. These examples come with a nomenclature of their own that is unique to that field of Biochemistry and has been established in the primary journals. This is the case with much of Biochemistry, the nomenclature and labeling is horrific. However, once you learn the nomenclature of a certain system then the principles of Biochemistry are very similar across topics.

**Objective #3:** You should walk away from this class saying “That is a cool subject I want to know more!”

This may be a bit idealistic but I do want to develop in you a sense of respect, reverence and awe for the wonderful intricacies and design of the cell and the macromolecules therein. Hopefully the questions we pose and seek to answer will develop in you a hunger to learn more.

RamCT: All course material will be presented via RamCT. Here are a couple of links to help you get familiar with RamCT:

1. Login page:
   a. [https://ramct.blackboard.com/](https://ramct.blackboard.com/)
   b. You will need an eID and password to login. If you don’t have one of these you can get it from this website. Simply click on “Get eID” [http://www.acns.colostate.edu/](http://www.acns.colostate.edu/)

2. Getting Started:
   a. [http://help.ramct.colostate.edu/student-resources.aspx](http://help.ramct.colostate.edu/student-resources.aspx)
   b. I have found Safari (Mac) to work very well with RamCT and the specific materials I will be asking you to stream from the site. Firefox as well as Internet Explorer will work fine as well, **HOWEVER Internet Explorer DOES have some issues that affect the view of EXAMS!!!** If you plan to use IE8/9 then please see the IE8/9.pdf document I attached to my introductory email and placed in the “Syllabus/Schedule” tab on RamCT.

3. In Blackboard:
   a. Course Dashboard:
      i. This will indicate due dates for your assignments. A word of caution this tool has some **BUGS** and I ask that you
refer to your course schedule for due dates. All assignments are due at 11:59PM Mountain Time on the day listed in the schedule.

b. Course content:
   i. This is where you will be able to download lecture notes, the syllabus and schedule and any study tools I make available to you.
   ii. You will also find all the Lecture Recordings in this area. I expect you to listen to all of these.

c. Assessments:
   i. This is where your quizzes and exams will be found.

d. My Grades
   i. I will report the grades on all your assignments in this tool as well as your final grade.

e. Discussion:
   i. I am making this available to facilitate student interaction. I will not enter the discussions myself unless a student directly asks me to help them via email. This would also be a good place to arrange study groups for individuals within the same local.

Course Materials: I am going to give you several things to help you gain knowledge of the principles of Biochemistry. Ultimately I will leave it up to you to determine how to go through the resources I am making available to you but I have designed the Tutorials to be the organizing force in this class.

1. Tutorials/Recordings:
   a. The material that we will cover in this class is best broken down into 12 different topics that I am deeming “Lectures”. Accompanying each lecture will be a number of “tutorials” for each major section in the lecture notes.
   b. Each “tutorial” is an audio-visual file of a lecture that I gave in my traditional course last spring. There therefore is an audience of about 150 people that of course interact with me via questions. The majority of the time I repeat the questions so that you know what was being asked. I also need to say that I do allude to upcoming tests and days of the week in many of these lectures. You will need to remember that these dates/days of the week apply to the audience for that class and not to you. The schedule for this class determines your tests dates etc.
   c. The files are Flash files and the most recent version of Flash is available online for free at this site (http://get.adobe.com/flashplayer/). Unfortunately
ipads, ipods, and iPhones do not support this player BUT desktop Macs do. Let me know if you have trouble streaming and we can develop a work-around for you.

2. Powerpoints
   a. Each tutorial is an audio walkthrough of a powerpoint presentation. I am going to make these powerpoint files available to you if you would like to use them to make notes on. One warning though, each powerpoint is comprised of a large number of slides and to print them off may not be economical.

3. Lecture notes
   a. The “Lecture notes” are an outline of the tutorials that will be given. There are 12 sets of lecture notes each of which will have a number of different tutorials. These notes are designed to help organize the class and the material presented in the class. If I were you I would print these off and make notes on them while viewing the tutorials. The notes will include:
      i. Terms and their definitions
      ii. A list of Biochemical Principles covered in that particular lecture.
      iii. Outline of topics being covered.
      iv. Figures being used in the powerpoints
      v. Page numbers, from the book, covering the topic at hand.

4. The book
   a. The book is an excellent resource and I strongly encourage you to use it to its fullest extent. I have given reading assignments for each set of lecture notes and have actually inserted page numbers from your reading assignment into each section found in the notes. This will focus your reading as the text is fairly comprehensive and not all of it will be used.
   b. In some areas you will find that the book is more or less detailed than my tutorials/notes. In these instances I will be holding you accountable for what I present and not what the book presents/leaves out.

5. Study Guides
   a. These are very general questions directing your studying and your thinking.

6. Practice exams
   a. Practice makes perfect and I STRONGLY encourage you to do the study guide and the practice exam before sitting down and taking the test.
Assessment: “So how are you going to assess me? In other words what will you require of me?”

1. Quizzes – 50 points
   a. There will be 11 that you will need to accomplish throughout the course of the semester. Each quiz will cover a specific portion of the lectures and this information will be made available to you. You will have two attempts for each quiz and as such you should be able to do quite well on them. You will be given access to the quizzes on the first day of class. See the class schedule for due dates of each quiz.

2. Exams - 400 points
   a. I am going to give four exams each worth 100 points. Exams will be a combination of multiple choice, matching and short answers. Each exam will be made available to you online in a one-week window. This window allows you the freedom to schedule a time that works best for you to accomplish the assignment. Please see the schedule for when each exam will be available and what it will cover. All exams are password protected and passwords will only be given to University approved proctors. It is your responsibility to select an eligible proctor, schedule exams with your proctor, and abide by all rules for bringing only appropriate materials into the testing area.

Exam Proctoring: In accordance with Colorado State University OnlinePlus proctoring guidelines, students have three options for having online exams proctored for this course. All three options require you to submit a Proctor Agreement Form found at http://www.online.colostate.edu/proctoring/ at least two weeks prior to the first date the exam is available. Below is a list of your options:

1. Work with an eligible proctor outside of Colorado State University. Your proctor selection is subject to approval. Any costs incurred due to using an outside proctor is your responsibility. Please review the eligibility guidelines found on the OnlinePlus website when selecting an outside proctor.

2. Take the exam at an OnlinePlus facility in Fort Collins or Denver, or at the University Testing Center (UTC) on-campus. Schedule an appointment at least three days before you need to take your exam. OnlinePlus offices do not charge for proctoring services. Contact OnlinePlus at (970) 492-4704 (Fort Collins) or (303) 573-6318 (Denver) or the UTC at (970) 491-6498 for more information.
3. **Use ProctorU, an online proctoring service, requiring a webcam and microphone.** Schedule an exam with ProctorU at least four days before you need to take your exam. The cost for online proctoring is included in the cost of the course.

**How to Study:**

The question I am most often asked by students is “How do I study for this class?” As such I have decided to provide the answer up front so you can get started right away!

The objective of studying is to learn the material that is being presented. Exams are designed to assess whether or not you have learned. So really the question is “How do I learn in this class?” I think the best way to do this is to be prepared prior to listening to the tutorials. My suggestion is to review questions I have presented to you in the study guides prior to the day that you listen to the material. Seek to answer these questions by doing the reading I assign to you in the text and also researching the topic on the world wide web. If you can’t come to an answer you are satisfied with, no big deal, at least you have thought about the material before listening. Now when you listen your mind will be better prepared to understand the material I am presenting and you will be much more able to pick out the important points in my lecture. Once the lecture is done, review your notes and reattempt to answer the questions in the study guide. If you still can’t come to an answer then email me or come and see me and I will hopefully set you straight.

Finally, my last bit of advice would be to utilize the quizzes as a practice session for the exam. You will have two attempts at each quiz. Study for your first attempt by reviewing your notes and nailing down terms and concepts. Put your notes and book away and take the quiz. If you do poorly, no big deal, you have another attempt. On your second attempt review your notes again, of course now with the questions in mind, keep your notes and book open and take the quiz a second time. This process will hopefully help you learn the material. I suggest doing the same thing with the practice exam.

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**Grades:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
</tr>
<tr>
<td>B</td>
<td>80-89%</td>
</tr>
<tr>
<td>C</td>
<td>70-79%</td>
</tr>
<tr>
<td>D</td>
<td>60-69%</td>
</tr>
<tr>
<td>F</td>
<td>below 60%</td>
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</tbody>
</table>

**Grade Breakdown:**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points Counted</th>
<th>% of points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td>400</td>
<td>88%</td>
</tr>
<tr>
<td>11 Quizzes</td>
<td>50</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>450</td>
<td>100%</td>
</tr>
</tbody>
</table>
Academic Integrity: The definition for **integrity** is:

> “the quality of being honest and having strong moral principles; moral uprightness”

In practice I feel that this is best defined as “doing the right thing when no one is looking”. It is my goal to be a man of integrity in every facet of my life. As such it is important for you to know what I feel that means for this course. The following is a list of **what you should expect from me** in terms of academic integrity:

1. Make sure that what I teach is consistent with the most current knowledge in my field to the best of my ability.
2. To admit mistakes when made EVEN if they are not “caught” by students.
3. To treat each student with the dignity and respect they deserve based upon their status as a human being.
4. To understand and meet students needs particularly when circumstances beyond their control impact their academic performance.
5. Make sure that each student is given an equal opportunity to succeed in my course by:
   a. Providing the SAME study material for all students on each exam as seen on Blackboard.
   b. Providing access to student in both review sessions and my office hours.
   c. Providing every student with the SAME opportunity for extra credit assignments.
   d. Providing every student with identical exam score adjustments if needed.

That is what you should expect from me what though do I expect from you? Here is a list of **of my expectation for you the student** in terms of academic integrity:

1. I expect that you will work hard at my course and take full responsibility for the grade you receive at the end of the semester.
2. I expect that you will do all of your own work on both quizzes and exams. In other words you will not receive or use any unauthorized assistance on both quizzes and exams.
   a. For quizzes this simply means that you will not allow someone else to give you the answers or to take the quiz for you. You may use any other resource (lecture notes, the book, powerpoint presentation etc) at your disposal for these assessments.
b. For exams this means that you will take it and you will not use ANY resources other than the information recalled from your brain.

c. For exams the study materials that I permit are those found on blackboard. Students MAY NOT use old exams or practice exams from previous semesters as I cannot ensure each student has access to them.

3. I also expect that you will not GIVE unauthorized assistance on quizzes or exams.

4. I expect you to be honest in all your communication with me.

In summary my desire is that this class maintains a HIGH level of academic integrity consistent with the Student Code of Conduct.

End of the Semester: I know that there will be a handful of people at the end of the semester that need “just a few points” to get the grade they desire. An extra credit quiz will be designated as THE mechanism to get these points. **I WILL NOT NEGOTIATE GRADES AT THE END OF THE SEMESTER.** It is my expectation that you will accept the grade assigned to you and take responsibility for YOUR work throughout the semester. Grade negotiation always leads to someone receiving special treatment and is a policy that I cannot abide as I desire to maintain an atmosphere of academic honesty and integrity. If you are concerned about your grade please come and talk to me **DURING** the semester when something **can be done** about it.

Schedule: I have posted a lecture and exam schedule online. This schedule determines the pace of the course and contains ALL assignment due dates. As stated earlier, assignments are due at 11:59PM Mountain Time on the day listed on the Schedule.
### Lecture Schedule

*All Assignments are due at 11:59PM on dates listed here.*

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>TEXT</th>
<th>QUIZ (DUE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE</td>
<td>Introduction- Lecture 0 \nChemical Bonding and Thermodynamics – Lecture 1</td>
<td>11-14; 21-24; 43-51</td>
<td>1 (9/2)</td>
</tr>
<tr>
<td>TWO</td>
<td>Amino Acids and pKₐ – Lecture 2 \n<em>Start listening to Lecture 3 (get through LN03B)</em></td>
<td>23-24; 57-59; 71-81</td>
<td>2 (9/9)</td>
</tr>
<tr>
<td>THREE</td>
<td>Protein Structure – Lecture 3 \n*(LN03A-LN03F)*</td>
<td>82-83; 92-93; 113-123</td>
<td>3 (9/16)</td>
</tr>
<tr>
<td>FOUR</td>
<td>Protein Structure – Lecture 3 \n*(LN03G-LN03J)*</td>
<td>129-131; 138-143</td>
<td>4 (9/23)</td>
</tr>
<tr>
<td>FIVE</td>
<td>EXAM I – Worth 100 Points \n<em>Over LN01-LN03</em> \n<em>Opens 9/23 and Closes 9/30 at 11:59PM</em> \n<em>Start listening to Lecture 4 (get through LN04C)</em></td>
<td>Lectures 1-3</td>
<td>NA</td>
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<tr>
<td>SIX</td>
<td>Protein Function: Ligand Binding – Lecture 4 \n<em>Start Listening to Lecture 5 (get through LN05A)</em></td>
<td>153-162; 167-169</td>
<td>5 (10/7)</td>
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<tr>
<td>SEVEN</td>
<td>Protein Function: Enzymes – Lecture 5 \nProtein Function: Enzyme Kinetics – Lecture 6</td>
<td>183-194; 213-216 \n186; 188; 194-199</td>
<td>6 (10/14)</td>
</tr>
<tr>
<td>EIGHT</td>
<td>EXAM II – Worth 100 Points \n<em>Over LN04-LN06</em> \n<em>Opens 10/14 and Closes 10/21 at 11:59PM</em> \n<em>Start listening to Lecture 7 (through LN07B)</em></td>
<td>Lectures 4-6</td>
<td>NA</td>
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<tr>
<td>NINE</td>
<td>Protein Function: Membrane Proteins – Lecture 7 \nStart Listening to Lecture 8 (through LN08B)</td>
<td>373; 375-379; 389-393</td>
<td>7 (10/28)</td>
</tr>
<tr>
<td>TEN</td>
<td>Metabolism: Bioenergetics – Lecture 8 \n<em>Start Listening to Lecture 9 (through LN09A)</em></td>
<td>21-26; 485-495; 506-507; 512-517</td>
<td>8 (11/4)</td>
</tr>
<tr>
<td>ELEVEN</td>
<td>Metabolism: Glycolysis/GNG – Lecture 9</td>
<td>23-24; 527-539; 546-547; 551-557</td>
<td>9 (11/11)</td>
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| TWELVE | **EXAM III – Worth 100 Points**  
*Over LN07-LN09*  
*Opens 11/11 and Closes 11/18 at 11:59PM*  
*Start Listening to Lecture 10 (through LN10B)* | Lectures 7-9 |
|   |   |   |
| THIRTEEN | Metabolism: Metabolic Control - **Lecture 10**  
*Start Listening to Lecture 11 (through LN11A)* | 220-224; 502-503; 569-577; 585-587; 935 | 10 (12/2) |
|   |   |   |
| FOURTEEN | Metabolism: TCA cycle – **Lecture 11**  
*Start Listening to Lecture 12 (get through LN12C)* | 615-617; 620-631; 635-637 | 11 (12/9) |
|   |   |   |
| FIFTEEN | Metabolism: ETC/OP – **Lecture 12** | 707-720; 723-731 | Na |
|   |   |   |
| SIXTEEN | **EXAM IV – Worth 100 Points**  
*Over LN10-LN12*  
*Opens 12/10 and Closes 12/17 at 11:59PM* | Lectures 10-12 | Na |