

## **BCHM88A - Introductory Biochemistry**

Summer Session 1, 2017

Dr. Kene Piasta

Office - SSC 0-16E

Office Hours - TBD and by appointment

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Class Meeting Time - Monday, Tuesday, Wednesday, Thursday, 11:00 am - 12:50 pm

Class Location - TBD

**This syllabus may change between now and the start of class. It should be utilized for your planning purposes only.**

### **Summary:**

BCHEM88 is an introductory biochemical class. It demands a general chemistry, organic chemistry, and biology background and therefore moves at a rapid pace which is required to cover all of the material.

This course is an INTENSIVE summer course. It is NOT a watered down version of the BCHM88 course offered during a full semester. Not attending a single day of class means you are going to miss approximately 10% of the total class material. Attendance is therefore of the utmost importance.

This course will be partially guided by questions and interactions during class time. The more you ask and the more you participate, the more I will be able to make the course relevant to you. For those of you who do not like speaking in class, please use the Reflections to do so.

All course information will be posted on Latte and the Latte email system will be utilized for all emails. I highly suggest you check the Latte page for this course regularly.

In general terms the course will cover biological macromolecules with heavy emphasis on proteins, equilibrium binding, enzyme mechanisms, and metabolism. These are the foundational concepts in biochemistry. Although some memorization is required, this course will be taught stressing thinking and problem solving. Biochemistry is also a comprehensive subject. Each class will build on those before it, thus all assessments utilized in the course will be comprehensive and cumulative.

If you require a University sanctioned accommodation, please contact me as soon as possible.

### **Learning Objectives:**

Biochemistry illuminates the molecular details of living things. In your studies this semester, you will:

- explain biological phenomena using chemical and biochemical terminology, facts and concepts;
  - evaluate the relationship between molecular structure and function;
  - describe and construct metabolic pathways; and
  - communicate biochemical concepts effectively.
- Please note that a four credit hour class requires 9 hours of outside time per week for studying. You will not perform well in this class if you do not put in the time and effort.

## Course Format:

This course is lecture based with activities sporadically planned throughout the semester. The material covered during the lecture is essential for performing well in this course. I highly suggest you attend all lectures.

All readings have been selected purposefully - I have tried to minimize extraneous information as much as possible. The reading should reinforce the material covered in lecture and should be considered an essential resource. Other reading will be posted to Latte as needed.

You must put in the time studying outside of lecture and recitation. Biochemistry is a class where if you are not actively thinking about the material, you will become lost quickly. Please make sure you are not memorizing material since I can tell you this will not lead to success in the class.

## Academic Integrity:

Students are expected to work independently on all homework and exams unless otherwise stated. Conduct inconsistent with the policies on academic honesty in "Rights and Responsibilities" will be treated seriously. <http://www.brandeis.edu/studentaffairs/srcs/rr/>

## Text Book:

*Essential Biochemistry*, 3th edition by Pratt and Cornely

This textbook is what is referenced on the Course Calendar. It is available in the bookstore or any online retailer.

Supplementary - *Pushing Electrons* by Weeks

This workbook is great for refreshing yourself on electron pushing mechanisms. I highly recommend it if you feel any unease with electron pushing. The third edition can be purchased on Amazon for less than \$20.

## Grading:

Your ultimate grade is determined by the following assessments:

- **Bi-Weekly Reflections (10%)** - you will submit **8 electronic reflections** by answering questions about that week's material. It is due by **7 PM on Tuesday and Thursday** as stated in the course calendar. These reflections can help guide the material discussed during recitation. Absolutely no late reflections will be accepted.
- **Problem Sets (10%)** - you will complete **4 problem sets** that are based on the material covered in class. The problem sets are due at the beginning of class as stated on the course calendar. Absolutely no late problem sets will be accepted.
- **Biochemistry Project (20%)** - you will complete a project where you find, research, and write a two page paper on a metabolic disease. More details will be discussed in class.
- **Four Exams (60%)** - you will have **4 exams** each of which is comprehensive. These exams will be held during class as listed on the course calendar. Absolutely no make up exams will be administered for any reason. However, your lowest exam grade will be dropped.

**Schedule:** I reserve the right to change this schedule as needed to achieve the goals of the course.

	Date	Topic	Reading	Assignments
1	Mon, Jun 5	Chemical Bonding Thermodynamics Water	Readings TBD	
2	Tue, Jun 6	Ionization Biological Macromolecules	Readings TBD	<b>Reflection 1</b>
3	Wed, Jun 7	Amino Acids Polypeptides	Readings TBD	
4	Thu, Jun 8	Protein Structure Protein Folding	Readings TBD	<b>Reflection 2 Problem Set 1</b>
5	Mon, Jun 12	<b>Exam 1</b> Myoglobin	Readings TBD	
6	Tue, Jun 13	Hemoglobin Catalysis	Readings TBD	<b>Reflection 3</b>
7	Wed, Jun 14	Michelins-Menton Kinetics	Readings TBD	
8	Thu, Jun 15	Enzyme Mechanisms	Readings TBD	<b>Reflection 4 Problem Set 2</b>
9	Mon, Jun 19	<b>Exam 2</b> Metabolism	Readings TBD	
10	Tue, Jun 20	Metabolic Toolbox Cofactors	Readings TBD	<b>Reflection 5</b>
11	Wed, Jun 21	Glycolysis Fermentation Gluconeogenesis	Readings TBD	
12	Thu, Jun 22	TCA Cycle Electron Transport Chain Oxidative Phosphorylation	Readings TBD	<b>Reflection 6 Problem Set 3</b>
13	Mon, Jun 26	Lipid Metabolism	Readings TBD	
14	Tue, Jun 27	Protein Metabolism Urea Cycle	Readings TBD	<b>Reflection 7</b>
15	Wed, Jun 28	Float Day	Readings TBD	<b>Problem Set 4</b>
16	Thu, Jun 29	<b>Exam 3</b>	Readings TBD	<b>Reflection 8</b>
17	Mon, Jul 3	NO CLASS	NO CLASS	NO CLASS
19	Wed, Jul 5	Finishing Up and Review		
20	Thu, Jul 6	<b>Exam 4</b>		<b>Project Due</b>