

**INTRODUCTION TO BIOCHEMISTRY CHE-244 SYLLABUS
SUMMER SESSION C: 7/11-8/10 2016**

I. PRE-REQUISITES:

Successful completion of CHE 120 -Essentials of Organic Chemistry Lectures

II. INSTRUCTOR:

Professor: Cristina Clement Ph.D.

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Office: Davis Hall 318

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III. LECTURE SCHEDULE:

CHE 244 meets M T W Th, 3:45-5:45 PM; room: TBA (Lecture)

Office hour: after class

IV. TEXT

No required textbook for this course. Following are the recommended textbooks:

- *General, Organic and Biological Chemistry Karen Timberlake, Fifth Edition.*
- *Biochemistry a Short Course, Second Edition, John L. Tymoczko, Jeremy M. Berg and Lubert Stryer*
- *Biochemistry – The molecular basis of life McKee and McKee 3rd or 4th Edition*
- *Lippincott's Illustrated reviews: Biochemistry Denise R. Ferrier*
- *Or the following On Line resource: <http://www.ncbi.nlm.nih.gov/books/NBK21154/>*

V. COURSE OBJECTIVES:

After completing this course students should be able to:

- Describe the structure(s) of a typical, amino-acid, lipid, nucleotide and sugar
- Understand the factors that influence the activity of proteins
- Understand the kinetics of enzyme activity and how this can be modified
- Describe typical catabolic and anabolic pathways in eukaryotic cells
- Understand how ATP is produced in the cell and how redox and energy levels in the cell are regulated

VI. COURSE REQUIREMENTS AND GRADING

REQUIRED HOME WORK:

Sapling homework assessment for each work will be based on the material covered in-class. Homework assignment will be 15% of your final grade.

How to set-up your Sapling account:

Students:

1. Go to <http://saplinglearning.com> and click on your country ("US Higher Ed" or "Canada") at the top right.
- 2a. If you already have a Sapling Learning account, log in and skip to step 3.
- 2b. If you have Facebook account, you can use it to quickly create a Sapling Learning account. Click the blue button with the Facebook symbol on it (just to the left of the username field). The form will auto-fill with information from your Facebook account (you may need to log into Facebook in the popup window first). Choose a password and timezone, accept the site policy agreement, and click "Create my new account". You can then skip to step 3.
- 2c. Otherwise, click the "Create an Account" link. Supply the requested information and click "Create My Account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.
3. Find your course in the list (you may need to expand the subject and term categories) and click the link.
4. If your course requires a key code, you will be prompted to enter it.
5. If your course requires payment, select a payment option and following the remaining instructions.

Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments. During sign up or throughout the term, if you have any technical problems or grading issues, send an email to support@saplinglearning.com explaining the issue. The Sapling Learning support team is almost always faster and better able to resolve issues than your instructor.

EXAMS:

For this class there will be 3 mid-session assessments and a final exam that will contain both multiple choice and longer questions. The final grade will be established as follows:

Completion of weekly Sapling Home Work Assignment (13 homework assignments)	20%
Mid Term Exam 1	15%
Mid Term Exam 2	15%
Mid Term Exam 3	15%
Final exam (not comprehensive)	35%

No make-up exams will be given.

VII. ATTENDANCE POLICY

Students should be present at every class.

A student cannot miss mid-term assessments. For the final grade the presence at the final exam is compulsory.

A valid ID is required for exams.

VIII. TENTATIVE COURSE OUTLINE

Topic number	Topics	Home work Assignment
Jul 11th	Introduction, water, functional groups and buffers.	1
Jul 12rd – 13th	Amino-acids	2
Jul 14th	Peptides	3
Jul 18th –19th	The three dimensional structure of proteins	4
Jul 19th	Midterm 1. Protein Function and Enzymes	
Jul 20th – 21st	Protein Function and Enzymes	5
Jul 25th-	Carbohydrates	6
Jul 26th	Mid Term 2. Nucleic acids structure and gene expression.	
Jul 27th	Nucleic acids structure and gene expression	7
Jul 28th	Lipids	8
Aug 1st	Bioenergetics	9
Aug 2nd	Mid-Term 3. Glycolysis.	
Aug 3th	Glycolysis. Gluconeogenesis and Glycogen metabolism (breakdown and biosynthesis)	10
Aug 4th	Glycogen metabolism and the pentose phosphate pathway.	11
Aug 8th	The pyruvate dehydrogenase complex (PDC) citric acid cycle.	12
Aug 9th	The electron transport chain (ETC) and Oxidative Phosphorylation/Proton Motive Force.	13
Aug 10th	Final Exam	

IX. CLASSROOM POLICY

Food policy: Food and drinks are not allowed in the classroom.

Cell Phone Policy. Cell phones are disruptive, even in vibrate mode. Make sure your cell phone is switched off before class starts. Text messaging during class is also highly disruptive and not allowed.

Other electronic devices Policy No electronic devices can be used or kept accessible during examinations; this includes, but is not limited to i-Phones, cell-phones, beepers, iPods, MP3 players, tape-recorders, PDAs, **Bluetooth** and other computing or music devices.

Only **basic** calculators will be allowed.

Grade Assignments:

100%-95% = A; 94.9%-90% = A-; 89.9%-80% = B+; 79.9%-75% = B; 74.9%-70% = B-
69.9%-65% = C+; 64.9%-60% = C; 59.9%-55% = C-; 54.9%-50% = D; Below 50% = F