CHEMISTRY 271/4 52 Biochem I: INTRODUCTORY BIOCHEMISTRY Jan. 2015

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Office hours: Wed. 12:00-13:00, or by appointment

CHEM 271 *Biochemistry I* (3 credits)
Prerequisite: CHEM 221. An introduction to the essentials of biochemistry: protein structure, enzymology, carbohydrate metabolism, electron transport, integration and regulation of metabolism. Lectures, tutorials and laboratory.

Objectives: This course represents an introduction to the essentials of biochemistry and is the entry level biochemistry course for students in many different disciplines, *e.g.*, biochemistry, biology, cell and molecular biology, chemistry, exercise science and psychology. To meet the demands of all of these disciplines we must cover a very large amount of material. This is a difficult course and some of the primary objectives include:

1) To **learn** a basic set of structures and mechanisms required for biochemical reactions. This will involve memorizing a number of different structures, mechanisms and reaction pathways.
2) To **understand** the chemistry behind these structures and reactions. This will allow you to see that these structures, mechanisms and reaction pathways make sense in chemical and thermodynamic terms.
3) To **apply** what you have learned in points one and two. This will allow you to show that you can take what you have learned and apply it to new situations defined by the same chemical and thermodynamic principles.
4) To gain hands-on experience in all of these aspects of biochemistry through the laboratory component of the course.

Textbook: **Required**: *Biochemistry*, 7th edition, Berg, Tymoczko and Stryer
Chemistry 271: Laboratory and Tutorial Manual, Powlowski *et al*. (2015)
Suggested: *Student companion to accompany Biochemistry, 7th ed.* Deis *et al.*

Web resources: Course web page available on Moodle (www.myconcordia.ca),
Online quizzes at Sapling Learning (https://www.saplinglearning.com/)

Grading:	Term tests **(February 10th and March 24th)**	35% (15% + 20% or 20% + 15%)
	Tutorials/Labs (see manual)	25%
	Online quizzes (Sapling Learning)	5%
	Final exam (date TBA in exam period)	35%

Term tests: The dates for the term tests are fixed and will not change. If you miss a term test with a **VALID** excuse (*e.g.*, medical with doctor's note) you must arrange within one week to write the replacement test. If you do not write a term test (or its replacement) you will receive a grade of **zero** for that test (0/15).

Grading scale: F: 0 – 49.9, D-: 50-52.9, D: 53-56.9, D+: 57-59.9, C-: 60-62.9, C: 63-66.9, C+: 67-69.9, B-: 70-72.9, B: 73-76.9, B+: 77-79.9, A-: 80-84.9, A: 85-89.9, A+: 90 and greater.

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

Tutorials/Labs: You **MUST** score 60% the tutorial/lab section to pass the course. A grade of less than 15/25 will result in an "R" grade indicating that you must repeat the course. Labs/tutorials will begin on January 14th.

Each tutorial session will have a short quiz or take-home assignment associated with it. These quizzes or assignments are the basis for the tutorial grade. Each of the labs will require completion of a short lab report. There are 11 elements and one (lowest mark or medical exemption) will be dropped. The remaining 10 will be scaled to a mark out of 25. If you miss a tutorial you cannot write the associated quiz, if you miss a lab you cannot hand in the lab report: you will lose those marks. For more information please consult your lab manual.

Please note that **space in the labs and tutorials is limited**, so you must attend the section for which you registered. No changing sections. To accommodate all of the students each lab/tutorial section has been divided into two groups (A or B). Each group will alternate labs and tutorials. You will be informed through email as to which group you have been placed. If you have a valid problem, please contact Mr. Mihai Ciortea (SP238 / tel: 514-848-2424 x3363).

Lab exemptions: Students who are repeating the course, and have passed the lab component within the past two (2) years, may request a lab exemption. Applications for the exemption (forms available in SP201.01) must be completed by noon January 9th, the end of the first week of term (*i.e.* prior to the start of the laboratory); late applications will not be accepted. Signed and completed forms are to be returned to Hilary Scuffell, (SP 275.01). Students MUST register for the appropriate lab exemption lab/tutorial section; students registered in any other lab/tutorial sections will be required to complete the lab portion of the course (**NO EXCEPTIONS**).

Online quizzes: We have developed an agreement with Sapling Learning to add online quizzes to the course to reinforce what we discuss in the classroom. Access to these quizzes is through www.saplinglearning.com/ (see attached). Quizzes will be assigned on a regular bases and will account for 5% of your grade.

Strategic Learning: There are additional weekly review sessions organized outside of the regularly scheduled classes. To obtain more information on the Strategic Learning (SL) program please see: http://learning.concordia.ca/SL_StudentInfo.shtml or contact your SL leader.

Lecture date	**Topic**	**Berg *et al.* *Biochemistry* 7th ed.**
Jan. 13	Introduction, amino acids, peptides, pH	1, 2
Jan. 20	Proteins (primary & secondary structure)	2, 6
Jan. 27	Proteins (higher order structure) & Hemoglobin	2, 7
Feb. 03	Exploring proteins & Enzymes (basic concepts)	3, 8
Feb. 10	**TERM TEST I**	
	Enzymes (kinetics & inhibition)	8
Feb. 17	Enzymes (mechanisms & regulation)	9, 10
Feb. 23-27	**Term break**	**no classes, labs, or tutorials**
Mar. 03	Introduction to metabolism & Carbohydrates	15, 11
	Genbank assignment due at lecture (March 3rd)	
Mar. 10	Glycolysis	16
Mar. 17	Glycolysis and Gluconeogenesis	16
Mar. 24	**TERM TEST 2**	
	Glycogen metabolism	21
Mar. 31	Citric acid cycle	17
Apr. 07	Integration of metabolism & Bioenergetics	18
Apr. 14	Oxidative phosphorylation	18

Please see additional sheet for laboratory and tutorial schedules.

PLAGIARISM AND OTHER FORMS OF ACADEMIC DISHONESTY:

The most common offense under the Academic Code of Conduct is plagiarism which the Code defines as "the presentation of the work of another person as one's own or without proper acknowledgement."

This could be material copied word for word from books, journals, internet sites, professor's course notes, etc. It could be material that is paraphrased but closely resembles the original source. It could be the work of a fellow student, for example, an answer on a quiz, data for a lab report, a paper or assignment completed by another student. It might be a paper purchased through one of the many available sources. Plagiarism does not refer to words alone - it can also refer to copying images, graphs, tables, and ideas. "Presentation" is not limited to written work. It also includes oral presentations, computer assignments and artistic works. Finally, if you translate the work of another person into French or English and do not cite the source, this is also plagiarism.

In Simple Words:
Do not copy, paraphrase or translate anything from anywhere without saying from where you obtained it!

Source: http://www.concordia.ca/students/academic-integrity/plagiarism.html

The academic code of conduct can be found in section 17.10 of the academic calendar (http://www.concordia.ca/academics/undergraduate/calendar/current/17-10.html). Any form of unauthorized collaboration, cheating, copying or plagiarism found in this course will be reported and the appropriate sanctions applied. The Department of Chemistry and Biochemistry offers a seminar on the academic conduct code and the appropriate use of information sources which aims to clarify what practices will be considered unacceptable with regards to work submitted for grading in Chemistry and Biochemistry courses. Attendance at this seminar is highly recommended and represents a clear and fair opportunity to learn what our faculty regards as academic misconduct. Failure to take part in this learning opportunity and thus ignorance of these regulations is no excuse and will not result in a reduced sanction in any case where academic misconduct is observed. This short seminar (1 hour) will be held at the following times (note that late-comers will not be admitted):

Date	Time	Place
Monday, Jan. 19	16:45-17:45	CC-310
Monday, Jan. 19	20:45-21:45	HC-130
Tuesday, Jan. 20	16:45-17:45	CC-310
Wednesday, Jan. 21	16:45-17:45	CC-310
Wednesday, Jan. 21	20:45-21:45	HC-157
Thursday, Jan. 22	16:45-17:45	CC-310
Friday, Jan. 23	16:45-17:45	CC-310

As space for each of the seminars is limited by the room size, please sign up to your preferred time.
Sign up sheets are available outside SP 201.01 (Departmental office).

Sapling Learning is available for use in your course this term

Why should you take advantage of Sapling Learning?

Sapling Learning is an online homework tool created for students to reinforce what is learned in the classroom. Our responsive feedback coaches you through fundamental concepts. Sapling Learning helps you to gain a deeper understanding of the course topics and assists you in performing better on your exams. Studies have shown your marks can increase by a full letter grade by using Sapling Learning.

Dr. James Caras welcomes you to Sapling Learning:

https://vimeo.com/72453315

How do I register for Sapling Learning?

Step 1: Login or Create a New Account > https://www.saplinglearning.com

Step 2: Verify Your Account

Step 3: Select Your Course

Step 4: Enter your Enrollment Key, provided by your Instructor

Step 5: Determine your payment method given the payment due date (payment is not required immediately to begin using Sapling Learning; pay close attention to the due date)

Step 6: Start using Sapling Learning for your course work assignments

How do I contact Technical Support?

Support is available by emailing support@saplinglearning.ca Also, while using the Sapling site you may click the ***Support*** link at any time to obtain the support address

Get the grades you deserve with Sapling Learning!

Good Luck!

The University offers many services that can help students:

Concordia Counseling and Development offers career services, psychological services, student learning services, *etc.* - http://cdev.concordia.ca/
The Concordia Library Citation and Style Guides: *http://library.concordia.ca/help/howto/citations.html*
Advocacy and Support Services - http://supportservices.concordia.ca/
Student Transition Centre - *http://stc.concordia.ca/*
New Student Program - *http://newstudent.concordia.ca/*
Students with Disabilities - *http://supportservices.concordia.ca/disabilities/*
Student Success Centre - *http://studentsuccess.concordia.ca/*
Financial Aid & Awards - *http://web2.concordia.ca/financialaid/*
Health Services - *http://www-health.concordia.ca/*