



## COURSE SYLLABUS

### 397 Advanced Biochemistry Winter 2011

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**Class venue and time:** L2091, Tuesdays, 1:30 – 4 pm

**Course prerequisites:** BCH 297, CHE 251

#### **Course description:**

This course will discuss the current trends in biochemistry research and techniques through a seminar style using journal reviews and research papers. Students will be presenting several research papers as part of this course.

#### **Additional Course Information:**

This advanced course in Biochemistry involves detailed investigation of selected topics involving biological macromolecule and chemistry. These topics include current advances in cancer research, drug discovery, bacterial pathogenesis and cell biology. Research articles will be actively discussed, providing students with background information about these molecules, as well as the principles and most current techniques employed to study them.

#### **Learning objectives:**

1. Students will learn about the multidisciplinary applications of Biochemistry.
2. Students will learn how to critically examine research articles.
3. Students will learn to translate these research articles to scientific presentations.
4. Students will develop and enhance public speaking skills.
5. Students will learn to write a research grant proposal.

#### **Attendance:**

Attendance is compulsory for each class. Allocated marks will not be awarded if student is absent without notice and sufficient reason.

#### **Class activity:**

Each week, students are required to prepare a 30 minute PowerPoint presentation that summarizes their assigned research article. Each presentation must include background information about the topic, research question or hypothesis, approaches to address the question/hypothesis, and the interpretation of the published results. The students are also

required to participate in discussion of the various techniques and the interpretation of results described in the articles (10 minutes).

**Topic schedule:**

<b>Date</b>	<b>Topic</b>
Jan 18	Course introduction
Jan 25	Microarrays: DNA and Protein
Feb 1	Plant/industrial biochemistry
Feb 8	RNA interference
Feb 15	Mass spectrometry of biomolecules
Mar 1	Protein structure – NMR, Crystallography and X-ray diffraction
Mar 8	Protein dynamics – Hydrogen exchange, protection assays
Mar 15	Protein engineering – chimeric proteins, biopolymers etc.
Mar 22	Ligand binding – Protein-protein interaction, DNA-protein interaction, RNA-protein interaction, in situ hybridization, flow cytometry
Mar 29	Multiple techniques
Apr 5	Multiple techniques
Apr 12	Proposal paper deadline

**Mark distribution:**

Each student presentation is marked by fellow students (30%) and the instructor (70%). The breakdown of marks for each presentation is as follows:

Background information of the paper	20
Methods principles and protocol	20
Results and interpretation	20
Critical review of the paper	10
Overall presentation	10

In addition, student participation for each presentation carries 10 marks, to be assessed by the instructor. The total marks for each presentation will be scaled to 100, which translates to 500 for 5 presentations. In addition, 25 student participation evaluations (10 marks each) will give a total of 250 marks. A total mark for all student presentations and participations is 750.

The research proposal term paper carries 100 marks with the following breakdown:

Introduction	20
Material and methods	30
Expected results	20
Interpretation and application	20

## Future direction

10

The total marks for the whole course will be scaled to 100% in order to determine the final grade.

**Grading scheme:**

A+	93 – 100%	C+	66 – 69%
A	86 – 92%	C	62 – 65%
A–	82 – 85%	C–	58 – 61%
B+	78 – 81%	D+	54 – 57%
B	74 – 77%	D	50 – 53%
B–	70 – 73%	F	Below 50%

**Important Notes/Dates:**

Registration revision period: Wednesday, January 12 – Friday, January 21.

Last day to enter course without permission, last day to withdraw from a course, change to audit and receive tuition refund: Friday, January 21.

Community Day (Program Day): Thursday, January 27.

Scholarship application deadline: Monday, February 28.

Global impact day: Wednesday, March 9.

Last day to withdraw from courses or change to audit without academic penalty: Friday, March 18.

Registration period commences: Monday, March 28.

Registration deadline for returning student scholarship eligibility: Thursday, March 31.

Last day to request revised time for a final exam: Monday, April 4.

Last day to apply for time extension for coursework: Monday, April 4.

***Please note that final grades will be available on your student portal. Printed grade sheets are no longer mailed out.***

**Other Syllabus Features:****Electronic Etiquette**

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to engage in electronically-enabled activities unrelated to the class during a class session. Please turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Please do not use iPods, MP3 players, or headphones. Do not text, read or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

### **Academic Policies**

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Student Handbook and Academic Calendar. Personal information, that is information about an individual that may be used to identify that individual, may be collected as a requirement as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at [privacy@ambrose.edu](mailto:privacy@ambrose.edu).

### **Extensions**

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a "Course Extension" from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the appropriate deadline (as listed in the Academic Calendar <http://www.ambrose.edu/publications/academiccalendar>). Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

### **Academic Integrity**

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University College as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to give credit to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university college. Students are expected to be familiar with the policies in the current Academic Calendar and the Student Handbook that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Students are advised to retain this syllabus for their records.