



## BCH 397

# Advanced Biochemistry

Number of credits: 3

Prerequisite:

BCH 297

Semester: Winter, 2015

Days: W & F @ 11:15 am

Room: A2141

Lab – day: No lab

Lab–Room: n/a

Instructor: Dr Ross Gilmore

Email: rgilmore@ambrose.edu

Phone: 403-410-2000

Office: A2214

Office hours: M/F 10:00 am

### 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.

*This course has an existing transfer credit agreement through Alberta Council on Admissions and Transfer. Visit [www.transferalberta.ca](http://www.transferalberta.ca) for details.*

### Further Course Information:

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

Every second lecture will, invariably, involve student-based presentations on prescribed research papers. Alternate lectures will vary in style but may often consist of lectures or presentations offered by your instructor to cover key concepts and biochemical techniques. *Scheduling limitations may require insertion of student presentations into these alternate slots.*

### Expected Learning Outcomes:

It is the aim of the course that students acquire the following skills:

1. Greater familiarity with the multidisciplinary

### Important Dates:

First day of classes: January 7, 2015

Registration revision period: January 18, 2015

Last day to request revised examination: March 2, 2015

Last day to withdraw from course: March 20, 2015

Last day to apply for time extension for coursework: March 30, 2015

Last day of classes: April 10, 2015

**Final Exam: none**

**Time: n/a**

**Room: n/a**

- applications of Biochemistry and the technical processes involved.
2. The ability to critically examine research-style articles.
  3. The ability to translate these research-style articles into scientific presentations.
  4. An appreciation for the depth and breadth of current biochemical enquiry.
  5. The ability to critically assess the validity of scientific papers.



**Outline: (this schedule may change to accommodate further enrollment)**

| Date                     | Topic                                                                                                 | Quiz Availability (due midnight of Sunday, every week, except spring break, no extensions) |
|--------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Jan 7th                  | Instructor Lecture (several techniques and concepts covered). <i>Virtual lecture format, in-class</i> | none                                                                                       |
| Jan 9th                  | Chapter 1: Instructor-based Powerpoint presentation (Demonstration), in-class, in-person              | Chapter 1 single quiz                                                                      |
| January 14th             | Chapter 2 and Chapter 3 (two student presentations, A & B), in-class                                  |                                                                                            |
| January 16th             | Instructor lecture                                                                                    | Chapters 2 and 3 , two quizzes                                                             |
| January 21 <sup>st</sup> | Student Presentations (C and D), chapters 4 and 5                                                     |                                                                                            |
| January 23 <sup>rd</sup> | Instructor Presentation                                                                               | Chapters 4 and 5, two quizzes                                                              |
| January 28 <sup>th</sup> | Student Presentations (E and F) chapters 6 and 7                                                      |                                                                                            |
| Friday<br>January 30th   | lecture                                                                                               | Chapters 6 and 7, two quizzes                                                              |
| Feb 4th                  | Student Presentations (A and B), chapters 8 and 9                                                     |                                                                                            |

|                                             |                                                         |                                            |
|---------------------------------------------|---------------------------------------------------------|--------------------------------------------|
| Feb 6 <sup>th</sup><br>to 25 <sup>th</sup>  | Instructor lecture                                      | Chapters 8 and 9, two quizzes              |
| February<br>11 <sup>th</sup>                | Chapters 10 and 11, student presentations<br>(C & D)    |                                            |
| February<br>13 <sup>th</sup>                | instructor                                              | Chapters 10 and 11, two quizzes            |
| Feb 16 <sup>th</sup><br>to 20 <sup>th</sup> | Spring Break                                            |                                            |
| Feb 25 <sup>th</sup>                        | Chapters 12 and 13, student presentations<br>(E & F)    |                                            |
| Feb 27 <sup>th</sup>                        | Instructor                                              | Chapters 12 and 13, two quizzes            |
| Mar 4 <sup>th</sup>                         | Chapter 14 and Assigned Paper, (Session<br>#3; A and B) |                                            |
| Mar 6 <sup>th</sup>                         | Instructor                                              | Chapter 14 and research paper, two quizzes |
| Mar 11 <sup>th</sup>                        | Assigned Papers (Session #3: C and D)                   |                                            |
| Mar 13 <sup>th</sup>                        | Instructor                                              |                                            |
| Mar 18 <sup>th</sup>                        | Assigned Papers<br>(session #3: E and F)                |                                            |
| Mar 20 <sup>th</sup>                        | Instructor; current science                             | Two research papers, two quizzes           |
| March<br>25 <sup>th</sup>                   | Instructor; current science                             |                                            |
| Mar 27 <sup>th</sup>                        | Instructor; current science                             | Two lectures content, single quiz          |
| Apr 1 <sup>st</sup>                         | Instructor; current science                             |                                            |
| Apr 3 <sup>rd</sup>                         | Instructor; current science                             | Content of Two lectures, single quiz       |
| Apr 8 <sup>th</sup>                         | Instructor; current science                             |                                            |
| Apr 10 <sup>th</sup>                        | Instructor; current science                             | Content of Two lectures, single quiz       |

### Requirements:

Presentations must be in Powerpoint (or similar software) format and must be contained within a 35 minute frame. Refrain from excessive use of text. Include figures, diagrams, graphs, and illustrations, where required, to clarify content and methodologies used. Include a title slide, a summary slide, and a credit slide. Do not read off of your slide. Use a pointer to highlight slide components. Avoid; sound effects, irritating transition effects, and garish formats. Be well informed and research your topic thoroughly.

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Participation involves the interjection of thoughtful and well researched questions that indicate preparation and understanding of presented content, on the part of the participant. This will be revealed during the 7 minute question period following the presentation.

### **Submission of Assignments:**

Class sessions will variably consist of two components. Alternate lectures may or may not be devoted to a lecture covering relevant materials and techniques. These lectures, when they occur, will be presented by your Professor.

The second component will be presentations from students in PowerPoint format; two presentations per class session (30 minutes each). These presentations will focus on the principal techniques that were applied in a case study assigned from your course textbook or from a research paper. The student presentations will also explain how the applied technique was used to arrive at the conclusions drawn in the case study. It will further assess the validity of the conclusions drawn by the original researchers.

Each student will do three presentations over the course of the term. These presentations will be staggered over the full term. If six students are enrolled, then every third week, each student will do a presentation. The term is 14 weeks in length but the first two lecture slots will be devoted to instructor based lectures so students will not begin to present until the Wednesday of the second week. That leaves approximately 12 weeks open for weekly presentations. (one week off for spring break)

Each chapter of the text covers a single research-based case-study. Each student will present on the contents of a single chapter, or an assigned research paper, for each of their three presentations. Research papers, or their links, will be available online via moodle.

All 14 assigned chapters, and all papers, will have to be read, studied, and understood by all students participating in the course. The content of those chapters/papers and their case studies will be assessed in a series of short quizzes (20 questions or less, multiple choice and short answer). There will be one quiz written for every chapter or paper that an individual student did not present on. All of the quizzes will be through BlackBoard, open book, time limited, and due Sunday midnight of the week the presentations were featured. Near the end of the term, quizzes will be on lecture content. There will be 17 quizzes written by each student. (one for every Chapter/paper, on which, they don't present and several for end-of-term lectures ). There will be no final exam and no midterms. Although all quizzes will be available to students, only those you **need to write (the ones you did not present on)** will be credited toward your final grade.

Grading of presentations will be both peer and instructor based.

Presentations will be 30 minutes in length. They will be cut-off promptly at the 30 minute time limit and will be graded based upon the materials presented to that time point.

### **Attendance:**

Mandatory at all lectures and presentations.

### **Evaluation:**

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

|                               |    |
|-------------------------------|----|
| Clarity                       | 20 |
| Depth of Understanding        | 20 |
| Presentation Style and format | 20 |

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|------------------------------------------|----|
| Background Research and Support          | 20 |
| Critical review of the case study        | 10 |
| Knowledge and ability to field questions | 10 |

In addition, individual student participation as an audience member for each presentation carries 10 marks, to be assessed by the instructor and is based upon; the quality of questions asked of the presenter, respectful department, and evidence of comprehension/attentiveness. The total marks for each presentation done by a student will be scaled to 100, which translates to 300 total marks for 3 presentations. In addition, 11 student participation evaluations (10 marks each) will give an additional total of 110 marks. An overall summary mark for all student presentations and participation is 410. These 410 marks have a term weight of 66%. The quizzes will be worth approximately 2% each toward a total course weighted grade of 34%.

|                                              |     |
|----------------------------------------------|-----|
| 17 Quizzes @ 2% each                         | 34% |
| Presentations, 3 at 16% each                 | 48% |
| Participation, over 15 student presentations | 18% |

### Grade Summary:

The available letters for course grades are as follows:

| <u>Letter Grade</u> | <u>Description</u> |
|---------------------|--------------------|
| A+                  | Excellent          |
| A                   |                    |
| A-                  | Good               |
| B+                  |                    |
| B                   |                    |
| B-                  |                    |
| C+                  | Satisfactory       |
| C                   |                    |
| C-                  |                    |
| D+                  | Minimal Pass       |
| D                   |                    |
| F                   | Failure            |

|    |           |    |           |
|----|-----------|----|-----------|
| A+ | 94 – 100% | C+ | 66 – 69%  |
| A  | 86 – 93%  | 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% |

### Textbooks:

Chemical Biology by Waldmann, and Janning. Published by Wiley-VCH, ISBN: 978-3-527-32330-2

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## Policies:

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (Cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, it is highly recommended that they forward all messages from the Ambrose account to the other account.

During the **Registration Revision Period** students may to enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty. These courses will not appear on the student's transcript. Courses should be added or dropped on the student portal by the deadline date, please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a Request to Withdraw from a Course by the **Withdrawal Deadline**, please consult the List of Important Dates. Withdrawal from courses after the Registration Revision period will not be eligible for tuition refund. A grade of "W" will appear on the student's transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Students, who find a conflict in their exam schedule must submit a **Revised Examination** Request form to the Registrar's Office by the deadline date, please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

### 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 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 deadline date, please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control".

### Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Office of the Registrar in writing within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal to review final grades. If the appeal is sustained, the fee will be refunded.

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**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 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 strongly advised to retain this syllabus for their records.