UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF BIOLOGICAL SCIENCES
COURSE OUTLINE

1. **Course:** BCEM 561 – APPLIED BIOCHEMISTRY AND BIOTECHNOLOGY

Lecture Sections: L01 MWF 14:00-14:50 ST 061 WINTER 2015

Instructor: Dr. G. Moorhead BI 144A 220-6238 moorhead@ucalgary.ca

D2L course name: BCEM 561 L01 - (Winter 2015) - Applied BCEM & Biotechnology

Biological Sciences Department BI 186; (403) 220-3140; biosci@ucalgary.ca

2. **PREREQUISITE(S):** Biochemistry 393

ANTIREQUISITE(S): Credit for both Biochemistry 561 and Biotechnology 561 will not be allowed.

NOTE: Prior completion of CMMB 411 or BCEM 401 is strongly recommended.

See section 3.5.C in the Faculty of Science section of the online Calendar (http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)

3. **Grading:** The University policy on grading and related matters is described sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Midterm Exam 1	35%	In-Class
Midterm Exam 2	35%	In-Class
Seminar	30%	

There will not be a final exam in this course.

"Each piece of work (assignment or midterm tests) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade."

4. **Missed Components of Term Work:** The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in Section 3.6. It is the student's responsibility to familiarize himself/herself with these regulations. See also Section E.6 of the University Calendar

5. **Scheduled out-of-class activities:** None.

6. **Course Materials:** "Biochemistry 561 Lecture Notes" by G. Moorhead (2014) will be available on D2L for use during all lectures.

7. **Examination Policy**: No electronic or written aids (eg. cell phones, tablets, computers, PDAs, notes, textbooks) will be allowed during writing of any exams. Non-programmable calculators will be permitted to answer quantitative questions on exams, if applicable, and permission to do this will be clearly indicated on the examination paper. Students should also read the Calendar, Section G, on Examinations.

8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

(a) Misconduct: Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under Section K. Student Misconduct to inform yourself of definitions, processes and penalties.

(b) Assembly Points: In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on assembly points.

(c) Academic Accommodation Policy: Students with documentable disabilities are referred to the following links: Students with Disabilities: http://www.ucalgary.ca/pubs/calendar/current/b-1.html B.1 and Student Accessibility Services: http://www.ucalgary.ca/access/.

(d) Safewalk: Campus Security will escort individuals day or night (http://www.ucalgary.ca/security/safewalk/). Call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

(e) Freedom of Information and Privacy: This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information see also http://www.ucalgary.ca/secretariat/privacy.

(f) Student Union Information: VP Academic Phone: 220-3911 Email: suvpaca@ucagary.ca.
SU Faculty Rep. Phone: 220-3913 Email: sciencerep@su.ucalgary.ca; Student Ombudsman

(g) Internet and Electronic Device Information: You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

(h) U.S.R.I.: At the University of Calgary, feedback provided by students through the Universal Student Ratings of Instruction (USRI) survey provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses (www.ucalgary.ca/usri). Your responses make a difference - please participate in USRI Surveys.

Department Approval _____ORIGINAL SIGNED_____Date_____

C561 co W15; 12/4/2014 9:56 AM

UNIVERSITY OF CALGARY

DEPARTMENT OF BIOLOGICAL SCIENCES

COURSE OUTLINE

BCEM 561

APPLIED BIOCHEMISTRY AND BIOTECHNOLOGY

TERM: Winter 2015 SECTION NO: 01

PREREQUISITE(S): Biochemistry 393
See section 3.5.C in the Faculty of Science section of the online Calendar
(http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)

ANTIREQUISITE(S): Credit for both Biochemistry 561 and Biotechnology 561 will not be allowed.

NOTE: Prior completion of CMMB 411 or BCEM 401 is strongly recommended.

A student may not register in a course unless he has a grade of at least C- in each prerequisite course.

COURSE COORDINATOR: Dr. G Moorhead

LECTURERS: Dr. G. Moorhead

LECTURES: **M W F** **14:00** **ST 061**

TEXT: No textbook is required.

LECTURE NOTES: Download from D2L course website

RESERVE READING: See list of 15 books in Reserve Reading Room of Library.

MARK DISTRIBUTION: A. Composition of Final Grade

	Dates	Duration	Weighting	
Midterm Exam 1	Feb 4	50 min.	35%	In Class
Midterm Exam 2	Mar 4	50 min.	35%	In Class
Seminar[#]			30%	

[#] A topic from the list provided.

Grading Scale:

A+ = 92
A = 85
A - = 80
B + = 75
B = 70
B - = 65
C + = 60
C= 55
C - = 50
D = 48
F = < 48

B. Final Exam

There will not be a final examination in this course.

BIOCHEMISTRY 561 - WINTER 2015 Lecture Schedule

DATE	LECTURE TOPIC	LECTURER
Jan 12	Introduction, course themes, products of biotechnology	GM
14	History of biotechnology	GM
16	Microbial biotechnology	GM
19	Proteins as products	GM
21	Expanding the genetic code and the alphabet	GM
23	Synthetic biology, biofuels	GM
26	Antibiotics	GM
28	Agricultural/plant biotechnology	GM
30	Animal biotechnology	GM
FEB 2	Monoclonal antibodies	GM
4	**Midterm exam 1 In Class**	
6	Antibody therapeutics/ cancer immunotherapy	GM
9	Forensic and Bioremediation biotechnology	GM
11	Aquatic biotechnology	GM
13	Medical biotechnology	GM
FEB 15-22	***Reading Week. No lectures.***	**********
23	Stem cells, gene therapy	GM
25	Genomics, CE and NG sequencing	GM
27	Impact of the human genome, microarrays, RNA-seq	GM
MAR 2	Exomes, cancer genomes, SNPs and pharmacogenomics	GM
4	**Midterm exam 2 In Class**	**GM**
6	Seminar preparation and overview	GM
9	Student lectures (teams of 2)	You
11	Student lectures (teams of 2)	You
13	Student lectures (teams of 2)	You
16	Student lectures (teams of 2)	You
18	Student lectures (teams of 2)	You
20	Student lectures (teams of 2)	You
23	Student lectures (teams of 2)	You
25	Student lectures (teams of 2)	You
27	Student lectures (teams of 2)	You
30	Student lectures (teams of 2)	You
APR 1	Student lectures (teams of 2)	You
3	Student lectures (teams of 2)	You
6	Student lectures (teams of 2)	You
8	Student lectures (teams of 2)	You
10	Student lectures (teams of 2)	You
13	Student lectures (teams of 2)	You
15	Student lectures (teams of 2)	You

Important points:
Evaluation of student seminars is by both the instructor and classmates, thus attendance is mandatory for grading input and the question session following the lectures.
Student seminar guidelines: a 30-35 minute presentation equally distributed between background, experimental data and applications with respect to biotechnology. There will be a 10-minute question period afterwards. A PC for Powerpoint presentations will be available. Additional guidelines will be provided as we approach that time.