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

1. **Course: BIOCHEMISTRY 575 – LIPIDS**

Lecture Sections: L01		TR	11:00-12:15	SA 015	WINTER 2017
Tutorial Sections:	T01/02	T/R	2:00-2:50	BI 542/561	

Course Coordinator/Instructor: Dr. V. Zaremberg BI 390 220-4298 vzarembe@ucalgary.ca

Course website or Desire 2 Learn (D2L) course name: BCEM 575

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

2. **PREREQUISITE(S):** Biochemistry 393 and one of Biochemistry 401 or 443

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 in 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/ Assignment	34%	March 7 In-Class
Tutorial/Participation	32%	
Final Exam	34%	

There will be a final examination scheduled by the Registrar.

Each piece of work (presentations, assignment, midterm test or final examination) 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:** Dates and times of approved class activities held outside of class hours.

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

6. **Course Materials:** N/A

7. **Examination Policy**: Exams are open book. Students should also read the Calendar, Section G, on Examinations.

8. **Writing across the curriculum statement:** In this course, the quality of the student's writing in the assignment will be a factor in its evaluation. See also Section E.2 of the University Calendar.

9. 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) **Student Accommodations:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at http://www.ucalgary.ca/policies/files/policies/procedure-for-accommodations-for-students-with-disabilities_0.pdf.

Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Biological Sciences, Dr. H. Addy by email addy@ucalgary.ca or phone 403 220-3140.

(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: 403 220-3911 Email: suvpaca@ucalgary.ca
SU Faculty Rep. Phone: 403 220-3913 Email: science1@su.ucalgary.ca, science2@su.ucalgary.ca and science3@su.ucalgary.ca;
Student Ombuds Office: 403 220-6420 Email: ombuds@ucalgary.ca; http://ucalgary.ca/provost/students/ombuds

(f) **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.

(g) **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_____

FINAL EXAM SCHEDULED BY THE REGISTRAR

Grade Scale

A+ 92
A 86
A- 82
B+ 78
B 74
B- 70
C+ 66
C 62
C- 58
D+ 54
D 50
F <50

Learning outcomes

By the end of this course, successful students will be able to:

1. Describe the structure and biophysical properties of all lipid classes including glycerolipids, sphingolipids and sterols.
2. Recognize the differential contributions of individual lipids to cellular membranes.
3. Understand the major differences in membrane organization and lipid composition of cellular membranes in eukaryotic and prokaryotic cells
4. Explain metabolic pathways involved in synthesis and turnover of lipids
5. Identify key points of regulation in lipid metabolic pathways and the role of bioactive lipids in cellular signaling
6. Critically read and understand research papers related to the lipid field
7. Explain and interpret data from a broad range of approaches used to study biophysical properties of lipids and membranes, lipid-lipid interactions, lipid-protein interactions and lipid metabolism
8. Analyze and rationalize cellular strategies for maintenance of lipid homeostasis
9. Apply what they have learned in goals 1-8 to interpret data and defend their rationales and ideas when confronted with working (in progress) models related to the lipid field
10. Research the literature in order to recognize gaps in knowledge, challenge and question current accepted believes in the lipid field
11. Give oral presentations and discuss published research work in a critical way, both in groups and individually

Tentative Lecture/ Tutorial Plan

Week#1

Jan.	10	Course introduction and organization
	10	no tutorial
	12	Introduction to lipids and lipid structure
	12	no tutorial

Week#2

Jan.	17	Properties of membrane lipids and bilayers-I
	17	no tutorial
	19	Properties of membrane lipids and bilayers-II
	19	no tutorial

Week#3

Jan	24	Lipid metabolism
	24	Tutorial-1-group-1
	26	Lipid metabolism
	26	Tutorial-1group-2

Week#4

Jan	31	Lipid metabolism
	31	Paper 1-1
Feb.	2	Lipid metabolism
	2	Paper 1-2

Week#5

Feb.	7	Lipid metabolism
	7	Paper 2-1
	9	Lipid metabolism
	9	Paper 2-2

Week#6

Feb.	14	Lipid metabolism
	14	Assignment- resources
	16	Lipid metabolism
	16	Assignment- resources

Week#7 Feb 19-26- READING WEEK

Week#8

Feb	28	Lipid metabolism
	28	Assignment-discussion
Mar	2	Midterm review
	2	Assignment-discussion

Week#9

Mar	7	**Midterm exam**
	7	no tutorial
	9	Lipid signaling
	9	no tutorial

Week#10

Mar.	14	Lipid signaling
	14	Paper 3-1
	16	Lipid signaling
	16	Paper 3-2

Week#11

Mar.	21	Lipid transport
	21	Paper 4-1
	23	Lipid transport
	23	Paper 4-2

Week#12

Mar.	28	Lipid rafts
	28	Paper 5-1
	30	Lipid drugs
	30	Paper 5-2

Week#13

Apr.	4	TBA
	4	Paper 6-1
	6	TBA
	6	Paper 6-2

Week#14

Apr	11	Review
	11	No tutorial