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## CHEM3251/BIOL3252 – Biochemistry I

### Course Outline Fall 2017

<b>Instructor</b>	Karen Campbell
<b>Email</b>	kcampbe5@lakeheadu.ca
<b>Office Hours</b>	Wednesday and Friday 1:30pm - 2:30pm; CB 4032 (Chemistry Reading Room) or by appointment

<b>Prerequisite</b>	Organic II
<b>Website</b>	Syllabus, lecture notes, and other course materials are posted on Desire2Learn (D2L).
<b>Lecture</b>	Wednesday and Friday 2:30pm – 4:00pm    Location: UC0050
<b>Textbook</b>	<i>Biochemistry</i> , 8 <sup>th</sup> edition by Berg /Stryer/Tymoczko/Gatto, W.H. Freeman and Company, New York, 2015. ISBN-10: 1-319-03681-3; ISBN-13: 978-1-319-03681-2
<b>Lab Coordinator</b>	Christina Richard (CB 2028A, 343-8765, crichar3@lakeheadu.ca)
<b>Lab Sessions</b>	Mon 02:30PM -05:30PM, Tue 02:30PM -05:30PM. <b>Location:</b> CB2050 / 2051
<b>Lab Manual</b>	<i>Chem3251 &amp; Biol3252 – Biochemistry I Laboratory Manual</i> Department of Chemistry, Lakehead University, Revised 2017. <ul style="list-style-type: none"><li>• The manual is available for free download on Desire2Learn (D2L).</li><li>• Lab starts on the second week of classes.</li><li>• For a complete description of the labs and the dates when laboratory reports are due, please see your laboratory manual.</li><li>• Word document templates and other guiding materials for the preparation of your lab reports are also available on D2L.</li></ul>
<b>Mark Distribution</b>	Midterm Exams        25% + 25% Final Exam            25% Lab Reports            25% Quizzes                extra 0.5% each

#### Reading References

- Lecture notes will be posted on Desire2Learn in advance. They are intended as guides. The corresponding chapters in the textbooks must also be studied for exams.
- Lecture topics are subject to change and schedules are approximate.

#### Quizzes

- Online. Each quiz opens Friday at 6am and closes Monday at 6am.

#### Exams (including midterms)

- Midterm exams include everything up to the lecture prior to the exam, unless otherwise noted.
- Final exam is comprehensive. However emphasis will be given to content not covered in the midterms.
- No phones, tablets, or other gadgets allowed at the desk or with the student during the exams.
- Backpacks, bags, folders and other containers should be placed at the front of the classroom.
- Leave at least one seat empty between you and the next student.
- If you absolutely have to go to bathroom in the middle of the exam, leave all your belongings in the classroom.
- If you miss an exam for medical or compassionate reasons, you will be asked to present appropriate documentation in order to schedule a make-up exam during or immediately after the finals week.

## CHEM3251/ BIOL3252 – Biochemistry I - Tentative Class Schedule for Fall 2017

Date	Wednesday	Date	Friday	Week	Lab
9/06	<b>NO CLASS</b>	9/08	Review of biochemical concepts, macromolecule classes, amino acids (chp 1)	<b>1</b>	Labs start on week 2 LR = full lab report LQ&A = lab Q&A report
9/13	Nucleic acids (chp 4)	9/15	DNA replication, transcription and translation (chp 4)	<b>2</b> <b>Quiz 1</b>	Lab 1: Introduction to automatic pipettors and proper pipetting technique
9/20	Genomes and Genome sequencing (chp 5)	9/22	Protein composition and structure (chp 2)  <b>AT5040</b>  <b>Last day to add courses</b>	<b>3</b> LQ&A 1 (4%)	Lab 2: Biological properties of lipids: properties of membranes
9/27	Proteins: assay and purification (chp 3)	9/29	Proteins: physical characterization (chp 3)	<b>4</b> <b>Quiz 2</b> LQ&A 2 (4%)	Lab 3: Introduction to recombinant DNA methodology: B) Agarose gel electrophoresis of restriction enzyme digests
10/4	Uses of pure protein and Protein detection methods (chp 3)	<b>10/6</b>	<b>Exam I (25%)</b>	<b>5</b>	Lab 4: Purification of chicken egg white lysozyme: A) Ion-exchange chromatography and lysozyme quantification
10/11	<b>FALL STUDY BREAK</b>	10/13	<b>FALL STUDY BREAK</b>		<b>FALL STUDY BREAK</b>
10/18	Analysis and comparison of nucleotide and amino acid sequences (chp 6)	10/20	Introduction to metabolism (chp 15)	<b>6</b> LQ&A 3 (4%)	Lab 4: Purification of chicken egg white lysozyme: B) Protein content determination by the Bradford method
10/25	Carbohydrates and glycoproteins (chp 11)	10/27	Lipids (chp 12)	<b>7</b> LQ&A 4A (2%)	Lab 4: Purification of chicken egg white lysozyme: C) SDS-PAGE gel preparation
11/01	Cell membranes (chp 12)	11/03	Membrane proteins  <b>Last day to drop courses</b>	<b>8</b> <b>Quiz 3</b> LQ&A 4B (2%)	Lab 4: Purification of chicken egg white lysozyme: D) SDS-PAGE of chicken egg white and purified lysozyme
11/08	Transport across membranes (chp 13)	11/10	Glycolysis and Gluconeogenesis (chp 16)	<b>9</b>	Lab 5: Comparison of biochemical and chemical detection of carbohydrate content in beverages
11/15	TCA cycle (chp 17)	11/17	Oxidative phosphorylation (chp 18)	<b>10</b> LR4 (5%)	
11/22	Review	<b>11/24</b>	<b>Exam II (25%)</b>	<b>11</b> LQ&A 5 (4%)	
11/29	Biosynthesis of nucleotides and phospholipds (chp 26)	12/1	Biosynthesis of cholesterol and steroids (chp 26)	<b>12</b> <b>Quiz 4</b>	
12/7	<b>STUDY PERIOD</b>	12/17	<b>EXAMINATION PERIOD</b>	<b>13</b>	Marks due on 12/22

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## Accommodations

- Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities.
- If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible.
- For more information, please visit: <http://studentaccessibility.lakeheadu.ca>.