

# Biochemistry 202

## Course Outline

Summer Session Term 1: May 10, 2021 – June 17, 2021

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### Calendar

**Description:** **BIOC 202-951 – Introductory Medical Biochemistry (3 credits):** Introduction to proteins and enzymes, carbohydrate metabolism, and glucose homeostasis. The course emphasis is on human biochemistry and it is designed for students going into health science fields. Credit will be granted for only one of BIOC 202 or BIOC 203 or BIOL 201. **[3-0-1]**.

**Prerequisite:**

Either (a) CHEM 203 or (b) CHEM 233

**Equivalent:** BIOC 203, BIOL 201.

**Lectures:** MWF, 10:00-13:00 (10 am audio and notes released for each 3-hr lecture)  
~~Biological Sciences 1000~~ Covid-19 → ONLINE ONLY

**Dates:**

Before Midterm Exam (Section I): May 10, 12, 14, 17, 19, 21, 26, 28

After Midterm Exam (Section II): June 2, 4, 7, 9, 11, 14, 16

**Tutorials:** W & F, 13:00-14:00  
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***Tutorials are optional***

**Dates:**

Before Midterm Exam (Section I): May 12, 14, 19, 21, 26, 28

After Midterm Exam (Section II): June 2, 4, 9, 11, 16, 18\*

\* ***review tutorial***

**Textbook:** *Recommended* Lehninger: Principles of Biochemistry (Seventh edition), Worth Publishers, 2017.  
Also available as looseleaf package with portal. *Website:*  
<https://www.macmillanlearning.com/catalog/Product/lehningerprinciplesofbiochemistry-seventhedition-nelson>  
*Older 6<sup>th</sup> and 5<sup>th</sup> editions will suffice.*  
*Free online textbook:* <http://biochem.science.oregonstate.edu/biochemistry-free-and-easy>

**Instructor:** **Dr. Michael J. Krisinger (Course Chair, Lectures #1-15)**  
~~Biological Sciences Building – East Wing – 3rd Floor, Room 3048~~  
Covid-19 → ONLINE ONLY  
Tel: 827-1700; Email: [mike.krisinger@ubc.ca](mailto:mike.krisinger@ubc.ca)  
Questions/Concerns: personal related: please email  
course related: please use PIAZZA

### Teaching Assistants:

**Amy Strilchuk (Section I)**

**Nisha Chander (Section II)**

|                   |                                   |   |
|-------------------|-----------------------------------|---|
| <b>Key Dates:</b> | Quiz 1                            | Fri, May 14 <sup>th</sup> , 2021 from 16:00-17:00   |
|                   | Quiz 2                            | Fri, May 21 <sup>st</sup> , 2021 from 16:00-17:00   |
|                   | Victoria Day ( <b>no class</b> ): | Mon, May 24 <sup>th</sup> , 2021                    |
|                   | Midterm exam:                     | Mon, May 31 <sup>st</sup> , 2021 from 10:00 – 13:00 |
|                   | Quiz 3                            | Fri, June 4 <sup>th</sup> , 2021 from 16:00-17:00   |
|                   | Quiz 4                            | Fri, June 11 <sup>th</sup> , 2021 from 16:00-17:00  |
|                   | Final Exam:                       | to be announced (June 21 to 25, 2021)               |

### Course weighting

|                                   |                          |
|-----------------------------------|--------------------------|
| Two Tutorial Quizzes (section I)  | 5% and 5% of final grade |
| Midterm Exam:                     | 40% of final grade       |
| Two Tutorial Quizzes (section II) | 5% and 5% of final grade |
| Final Exam (non-cumulative):      | 40% of final grade       |

**CANVAS:** Please login to the course web page: <https://canvas.ubc.ca> for other important announcements. Here you will also find **problem sets, lecture slides & notes** and a link to the **PIAZZA** discussion board.

### IMPORTANT NOTICE REGARDING EXAMINATIONS:

Both prescribed examinations – Midterm Exam and Final Exam – are mandatory. Students who miss a midterm or final examination will have a zero recorded as their mark for that exam. The situations in which a score of zero may be avoided are those for which the student meets all of the following conditions:

1. Circumstances clearly and absolutely beyond the control of the student caused the examination to be missed. Such circumstances include serious illness or injury, or death of a close family member. They do **NOT** include forgetting about the test, lack of preparation for the test, work-related or social obligations.
2. The student has notified the instructor about the missed examination. Such notification **MUST** occur in advance, if possible, or at the latest, on the day of the examination.
3. Proof of the circumstance is provided.

Students that miss the **midterm** examination because of medical problems and want to be granted a deferred midterm exam will **have to provide a certificate of illness within 5 days** of the exam. The treating doctor (at Student Health Service or any private clinic) is the only one who can document your illness. Any documentation has to be faxed directly from the attending doctor to the instructor (Attn Dr. Krisinger) at 604-822-5227. Deferred examinations will be performed on a date set by the instructor.

If these conditions are met, the student will be permitted to take a deferred examination that will be performed on a date and format (**oral** or perhaps written) set by the instructor.

Students that miss the **final** examination need to report to the Dean's office in their area of study. For Science students information can be found at:

<http://www.calendar.ubc.ca/vancouver/index.cfm?tree=12,215,410,1462>.

**Final examination period:** Students should not book airline tickets until the definitive final exam schedule has been posted, as preliminary schedules are often changed.

**June examinations are June 22-26 (inclusive).**

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### Course Outline and *Tentative* Lecture Schedule:

**Section I: lectures 1-7**

**Section II: lectures 8-15**

| <b>Date</b>             | <b>Lecture</b> | <b>Topic</b>   |
|-------------------------|----------------|--|
| May 10, 2021            | 1              | Introduction, Review of basic chemistry  |
| May 12, 2021            | 2              | Amino acid & protein structure   |
| May 14, 2021            | 3              | Protein structure  |
| May 17, 2021            | 4              | Enzyme thermodynamics & kinetics   |
| May 19, 2021            | 5              | Enzyme kinetics & inhibition   |
| May 21, 2021            | 6              | Protein catalysis: Chymotrypsin & Protein function: Hemoglobin                     |
| <b>May 24, 2021</b>     |                | <b>HOLIDAY – No lecture</b>  |
| May 26, 2021            | 7              | Introduction to metabolism, ATP, Carbohydrates<br><b>(end of midterm material)</b> |
| May 28, 2021            | 8              | Glycolysis   |
| <b>May 31, 2021</b>     |                | <b>Midterm Exam (40% of final course grade)</b>                                    |
| June 2, 2021            | 9              | e <sup>-</sup> carriers, Glycolysis regulation, Pyruvate dehydrogenase             |
| June 4, 2021            | 10             | Krebs cycle, Oxidative phosphorylation   |
| June 7, 2021            | 11             | ATP synthase   |
| June 9, 2021            | 12             | Regulation of Oxidative phosphorylation, Glycogen metabolism                       |
| June 11, 2021           | 13             | Gluconeogenesis, Ketone bodies   |
| June 14, 2021           | 14             | Fuel Metabolism: integration and regulation  |
| June 16, 2021           | 15             | Fuel Metabolism: integration and regulation, Diabetes, Wrap-up                     |
| <b>June 21-25, 2021</b> |                | <b>Final Exam (40% of final course grade): specific date TBA</b>                   |