

# CHEM/MBIO 2780 Syllabus Winter 2020

## Lecturer

Dr. Ellert Nichols

## Contact Information

406 B Parker  
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## Office Hours

By appointment only

## Recommended Textbooks/Online Materials

Tymoczko J.L. *et al*, 2019 Biochemistry, A short course, 4<sup>th</sup> Edition, W. H. Freeman Publishers.

Online materials can be accessed at:

<https://sites.google.com/macmillan.com/chem2780w20nichols/home>

## Lectures

January 6 – April 7, 2020

Monday, Wednesday & Friday 12:30 – 1:20 PM, 100 Fletcher Argue

All lecture materials will be made available for student access through the UM Learn website. Please note that material presented in class will take precedence over all other material.

## Laboratories

Labs begin the week of January 20 – 24.

Lab rooms, lockers and partners will be assigned. See lab manual for details.

Lab coats and safety glasses are required.

Information regarding preparation, submission and mark distribution for laboratory reports can be found in the Elements of Biochemistry II lab manual which is available for purchase in the University of Manitoba bookstore.

## Test/Examination Schedule and Evaluation

Mid-term tests: 25 % of total marks. There will be two in-class mid-term tests that will be a mix of multiple choice and long answer questions.

Laboratory: 25 % of total marks.

Final Exam: 50 % of total marks. The Final exam will be a mix of multiple choice and long answer questions.

In Class Time Mid-term Tests:

Wednesday January 29, 2020 worth 10.0% of total marks

Friday February 28, 2020 worth 15.0 % of total marks.

Both mid-terms will be held during class time.

Final Exam: Scheduled by student records

Mark Breakdown

A+	90-100%
A	80-89%
B+	75-79%
B	70-74%
C+	65-69%
C	57-64%
D	50-56%
F	below 50%

Optional Online Quizzes

Prior to each of the two in-class midterms, and during the final week of classes **optional**, online quizzes will be available to students who wish to evaluate their preparations for mid-terms and the final exam. If a student chooses to write the quiz the weight of the mid-term that immediately follows the quiz will be reduced by a percentage amount equal to the weight of that quiz.

For clarification of the above paragraph consider the following example: the first mid-term is worth 10% of your final grade, and if you choose to write the quiz that precedes this mid-term, your quiz grade will be worth 2 % and the mid-term will be worth 8% of your final grade.

The third quiz which will take place during the week prior to the start of the exam period and will be worth 5% of your final mark and your final exam will be worth 5.0 % fewer marks.

**These are not bonus marks**, you are simply spreading the grading weight between the quiz and the relevant written examination.

Please note that as soon as you submit even a single answer for an online quiz you have committed yourself to writing the quiz. So only submit answers on the online quiz if you are certain that you want marks allocated to that quiz.

The quiz prior to mid-term 1 is worth 2%.

The quiz prior to mid-term 2 is worth 3%.

The quiz prior to the Final Exam is worth 5%.

**Academic Misconduct**

In the case of academic misconduct (cheating, plagiarism, etc.) respecting a mid-term test or Final Exam, the student will be reported to the appropriate authorities for further evaluation and application of the appropriate penalties. It is up to the student to understand the rules of cheating and plagiarism. Please refer to the University of Manitoba General Academic Regulations and Requirements:

([https://umanitoba.ca/student/resource/student\\_advocacy/academicintegrity/Academic-Integrity-policies-and-procedures.html](https://umanitoba.ca/student/resource/student_advocacy/academicintegrity/Academic-Integrity-policies-and-procedures.html))

## Other Student Resources

Information about additional student resources can be found in the ROASS supplement Schedule A in the same UM Learn module that was used to access this document.

## Principal Lecture Topics

The numbers in brackets refer to the approximate number of lectures that will be assigned to the subject matter

### Organization and structure of metabolic pathways (5):

- bioenergetics
- general background information about pathways (Ch. 15)
- mitochondrial electron transport Chain (Ch. 20 and 21)

### Photosynthesis (4) :

- light reactions (Ch 22)
- calvin cycle (Ch 23)

### TCA Cycle and Carbohydrate Metabolism (5):

- review of glycolysis and TCA (Ch. 16, 18 and 19)
- gluconeogenesis (Ch 17)
- glycogen metabolism (Ch. 24 and 25)
- pentose phosphate pathway (Ch. 26)

### Lipid Metabolism (3):

- fatty acid degradation and  $\beta$ -oxidation (Ch 27)
- fatty acid synthesis (Ch 28)
- cholesterol and hormone synthesis (Ch 29)
- regulation of lipid metabolism

### Nitrogen Metabolism (5):

- nitrogen fixation (Ch 31)
- amino acid catabolism and the urea cycle (Ch 30)
- amino acid synthesis (Ch 31)
- nucleotide metabolism (Ch 32)

### Integrated metabolism (2)

#### DNA replication and repair (2)

- DNA replication (Ch. 34)
- DNA repair (Ch. 35)

#### RNA and transcription (1)

- RNA Synthesis and RNA processing (Ch. 36)

Protein synthesis (2)

Genetic code (Ch. 39)

Protein synthesis (Ch 40)

A number of additional lecture slots are held in reserve for review.