TIMETABLE - Fall 2022 - BIOC 450
PROTEIN STRUCTURE AND FUNCTION

Lecturers:
B. Nagar **(Coordinator)**, Room 464, Bellini Building, Tel: 514-398-7272, bhushan.nagar@mcgill.ca
E. Purisima, NRC, Biotech. Research Institute, Tel: 514-496-6343, enrico.purisima@cnrc-nrc.gc.ca
A. Berghuis, Room 466, Bellini Building, Tel: 514-398-8795, albert.berghuis@mcgill.ca
K. Gehring, Room 469, Bellini Building, Tel: 514-398-7287, kalle.gehring@mcgill.ca
M. Schmeing, Room 465, Bellini Building, Tel: 514-398-2331, martin.schmeing@mcgill.ca
C. von Roretz, John Abbott College, Tel: 514-457-6610 ext5189, christopher.vonroretz@mcgill.ca
A. Guarne, Room 467, Bellini Building, Tel: 514-398-3265, alba.guarne@mcgill.ca
R. Salavati, Room A-209, Institute of Parasitology, Tel: 514-398-7721, reza.salavati@mcgill.ca
M. Vera Ugalde, McIntyre Science Building, Tel: 514-398-5226, maria.verauglade@mcgill.ca

Days & Time: Mondays, Wednesdays & Fridays from 1:35PM – 2:25PM
Location: MCMED 1034

Date Day	Lecture Title	Lecture	Lecturer
AUG. 31st W	Introduction	1	BN
02 F	Primary Structure – Amino Acids	2	BN
05 M	**LABOUR DAY – NO CLASSES**		
07 W	Post-translation modifications	3	BN
09 F	Protein Forces	4	BN
12 M	Secondary Structure	5	BN
14 W	Tertiary/Quaternary Structure	6	BN
16 F	Protein Analysis	7	BN
19 M	Protein Folding	8	MVU
21 W	Project Session/Pymol	9	BN
23 F	Protein Folding	10	MVU
26 M	Project Session/Pymol	11	BN
28 W	***MIDTERM EXAM – NO LECTURE -> 6:30 PM -9:30 PM STBIO S1/4***		
30 F	Enzyme Kinetics	12	RS
OCT. 03 M	Enzyme Kinetics	13	RS
05 W	Enzyme Kinetics	14	RS
07 F	Enzyme Kinetics	15	RS
10 M	**THANKSGIVING – NO CLASSES**		
12 W	**FALL BREAK –NO CLASSES**		
14 F	Enzyme Mechanism	16	AB
17 M	Enzyme Kinetics – Ribozymes	17	CVR
19 W	Enzyme Mechanism	18	AB
21 F	Enzyme Mechanism	19	AB
24 M	Enzyme Mechanism	20	AB
26 W	Enzyme Mechanism	21	AB
28 F	Enzyme Mechanism	22	AB
31 M	Project Session	23	CVR
NOV. 02 W	Introduction to molecular modeling of biologics	24	EP
04 F	Modulating affinity	25	EP
07 M	Altering specificity	26	EP
09 W	***MIDTERM EXAM – NO LECTURE -> 6:30 PM- 9:30 PM STBIO S1/4***		
11 F	Poster Presentations	27	BN
14 M	Poster Presentations	28	BN
16 W	Poster Presentations	29	BN
18 F	Poster Presentations	30	BN
21 M	Special Topic – Mindless Brilliance	31	CVR
23 W	Special Topic – Lies, Damned Lies, and Statistics	32	KG
25 F	Special Topic – Alternative protein conformations in response to persistent changes	33	MVU
28 M	Special Topic – Antibiotic Resistance and Structural Biology	34	AB
30 W	Special Topic – Elucidating Protein-Ligand Interactions through Computer Stimulations	35	EP
DEC.02 F	Special Topic – Nonribosomal peptide synthetases	36	MS
05 M	Special Topic – DNA repair mechanisms	37	AG

MARKING SYSTEM: Mid-term1: 25%; Mid-term2: 35%; Team Project 30%; Special Topics 10%

Suggested reading:

A. REFERENCES

1. R.B. Silverman, "The Organic Chemistry of Enzyme-Catalyzed Reactions" 2000. Academic Press, San Diego, CA
2. N.C. Price and L. Stevens, "Fundamentals of Enzymology" The Cell and Molecular Biology of Catalytic Proteins, 3rd Edition. 1999. Oxford University Press, Oxford, U.K.
3. J. Kyte "Mechanism in Protein Chemistry". 1995. Garland Publishing Inc.
4. J. Kyte "Structure in Protein Chemistry". 1995. Garland Publishing Inc.
5. C. Branden and J. Tooze, "Introduction to Protein Structure" 1991. Garland Publishing Inc.
6. L. Stryer, "Biochemistry, 3rd. Edition" Chapters 1-3, 7-11. 1988 Freeman and Co.
7. J. Bell and E. Bell, "Proteins and Enzymes". 1988. Prentice Hall Inc.
8. A. Fersht, "Enzyme Structure and Mechanism" 1985. Freeman and Co., San Francisco.
9. T.E. Creighton, "Proteins" Structures and Molecular Properties. 1984. Freeman and Co., N.Y.
10. G.G. Hammes, "Enzyme Catalysis and Regulation" 1982. Academic Press, N.Y.

B. REFERENCE SERIES

1. H. Neurath and R.L. Hill, eds. "The Proteins", 3rd. ed. Academic Press. N.Y.
2. P.D. Boyer, ed. "The Enzymes", 3rd. ed. Academic Press, N.Y.
3. S.P. Colowick and N.O. Kaplan, eds. "Methods in Enzymology", Academic Press, N.Y.
4. "Annual Reviews of Biochemistry", Annual Reviews Inc. Palo Alto, CA.

MARKING SCHEME
BIOC 450

First Midterm	-	Bhushan Nagar	80%
(25%)	-	Maria Vera Ugalde	20%
Second Midterm	-	Albert Berghuis	~40%
(35%)	-	Reza Salavati	~35%
	-	Enrico Purisima	~20%
	-	Chris Von Roretz	~5%

Special Topics
(10%)

Team Project (Groups of ~4)
(30%)

*__NOTE:__ **This course does NOT have a Final Exam.**

BIOC 450
Protein Structure and Function

Pre-requisites
BIOC 311, BIOC 312 and/or sufficient organic chemistry.

Instructional Methods in this Course
- Zoom-recorded interactive lectures. Include theoretical content, in-class exercise and problem-based learning.
- Zoom-recorded review sessions (by Teaching Assistants)

The instructional approach is based on student attendance and participation. Students who choose to not attend class do so at their own risk.

MARKING SYSTEM

- **Mid-term1: 25%**
- **Mid-term2: 35%**
- **Team Project 30%**
- **Special Topics 10%**

The midterm exams are designed to be answered in 3h - or less – and are accessible to students via MyCourses/Assignments OR Crowd marks. TBA.
The Special Topics questions will be available after each "Special Topics" lecture
Students have 72h to complete the exam and upload their answers on MyCourses/Assignments or Crowd marks.

* These settings aim at maximizing universal access and were designed to accommodate students in different time zones, internet connectivity issues or other technical difficulties AND barriers to learning. Hence, OSD students are deemed accommodated with these settings, unless otherwise requested by OSD.

Les étudiants peuvent soumettre en anglais ou en français tout travail écrit destiné à l'évaluation.
In accord with McGill University's Charter of Students' Rights, students have the right to submit in English or in French any written work that is to be graded (except in courses where knowledge of a language is one of the objectives of the course).
In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

Online-Learning Etiquette
- Mute your microphone upon joining sessions. Changing your name is forbidden.
- Polite and respectful language must be used at all times. Disrespectful behavior and comments will not be tolerated.

Deferred Final and Supplemental
Deferred Finals and Supplemental exams are managed by McGill Exam Center. Students unable to attend the final exam **MUST SUBMIT a PDF of** a doctors' note to the Student Affairs Coordinator within **2 WEEKS** of the exam date. The doctor's note will only be accepted if it is **DATED THE DAY OF THE EXAM**. If legitimate doctor's notes are not provided you will receive a zero on the midterms.

Grading:

*The department of Biochemistry will **NOT** revise/upgrade marks except on sound academic grounds. Once computed, the marks in this course will **NOT** be altered/increased. Decimal points will be "rounded of" as follows: if the final aggregate mark is computed to be 79.5%, the mark will be reported as 80% (an A-); a final aggregate mark of 79.4% will be reported as 79% (a B+). These marks are **FINAL and NON-NEGOTIABLE.***

Useful resources

- **Student Rights and Responsibilities**

https://www.mcgill.ca/students/srr/academicrights

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see http://www.mcgill.ca/students/srr/honest/ for more information).

- **McGill Academic Calendar** (add/drop, withdrawal and other deadlines)

https://www.mcgill.ca/study/2020-2021/important-dates

- **Time management**

https://www.mcgill.ca/osd/student-resources/learningresources/time-management

- **Stress management**

https://www.mcgill.ca/osd/student-resources/learningresources/stress-management

- **Office for Students with Disabilities (OSD)**

https://www.mcgill.ca/osd/

- **Health and Wellness Resources at McGill**

Student well-being is a priority for the University. All of our health and wellness resources have been integrated into a single Student Wellness Hub, your one-stop shop for everything related to your physical and mental health. If you need to access services or get more information, visit the Virtual Hub at www.mcgill.ca/wellness-hub or drop by the Brown Student Services Building (downtown) or Centennial Centre (Macdonald Campus). Within your faculty, you can also connect with your Local Wellness Advisor (to make an appointment, visit mcgill.ca/lwa).