Dr. Joerg Gsponer  
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Dr. Calvin Yip (course chair)  
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Biochemistry & Molecular Biology  
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Teaching assistants:  
Mr. Sunny Cheung (syucheung1992@gmail.com)  
Mr. Guillermo Cabellero (memo.cabellero95@gmail.com)

In-person Lectures: Mon Wed Fri 9:00 – 9:50 am, WOOD6

Drop-in Tutorial (optional, web-based):  
Fri, 2:00 – 4:00 pm

<table>
<thead>
<tr>
<th>COURSE TOPICS</th>
<th>Approx. Number of Lectures</th>
<th>INSTRUCTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Structural components of proteins</td>
<td></td>
<td>J. Gsponer</td>
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<tr>
<td>(a) Amino Acids and the Polypeptide Chain Backbone</td>
<td>2</td>
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<tr>
<td>(b) Protein Structural Elements</td>
<td>1</td>
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<tr>
<td>(c) Protein Taxonomy</td>
<td>1</td>
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<td>2. Non-globular protein structures</td>
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<tr>
<td>(a) Amyloid fibrils and protein phase separation</td>
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<td>(b) Intrinsically disordered proteins</td>
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<td>3. Protein chemistry and spectroscopic techniques</td>
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<td>(a) Hydrogen bonds, pH, titration curves</td>
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<tr>
<td>(b) Spectroscopic techniques (including nuclear magnetic resonance)</td>
<td>5</td>
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<td>4. Signal transduction</td>
<td></td>
<td>C. Yip</td>
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<tr>
<td>(a) Protein signaling</td>
<td>2</td>
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<td>(b) Posttranslational modifications</td>
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<td>4. Protein sequencing, mass spectrometry, and chemical modification</td>
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<tr>
<td>(a) Protein sequencing</td>
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<tr>
<td>(c) Mass spectrometry</td>
<td>2</td>
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<tr>
<td>(c) Chemical modification, cross-linking</td>
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<td>5. X-ray crystallography</td>
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<tr>
<td>(a) Overview of X-ray crystallographic approach</td>
<td>3</td>
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<tr>
<td>(b) Assessing X-ray crystallographic data</td>
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<td>6. Macromolecular Assemblies and structural proteomics</td>
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<tr>
<td>(a) Protein-protein interaction &amp; macromolecular assemblies</td>
<td>1</td>
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<tr>
<td>(b) Molecular electron microscopy &amp; cryo-EM</td>
<td>2</td>
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<tr>
<td>(c) Structural proteomics</td>
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</tbody>
</table>
Course Material

There is no textbook for this course. All course material will be posted throughout the term via Canvas.

Problem sets will also be posted via Canvas (answers ~1 week later). These are invaluable for your learning and also serve as practice exam questions.

Drop-in Tutorial (Optional)

An online tutorial led by the two BIOC402 course TA’s will be held every Friday afternoon from 2pm to 4pm (Pacific Standard Time). No additional content will be delivered during these sessions and attendance is optional. The aim of these tutorials is to provide additional support outside of lectures, particularly to those who feel they are struggling to keep up with the pace of the lectures and content. During the tutorials, the TA will provide help individually or to small groups of students in a first come, first-served basis. Students may ask questions concerning the lecture material as well as seek guidance as they work through the different problem sets distributed through Canvas. Note that students can also seek help from the two instructors by e-mail or during office hours (days/times to be announced during their first lectures).

Grading and Examination Policies

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>Instructor(s)</th>
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<tbody>
<tr>
<td>Quizzes and Assignments</td>
<td>10%</td>
<td>(Drs Gsponer and Yip)</td>
</tr>
<tr>
<td>Midterm #1</td>
<td>30%</td>
<td>(Dr. Gsponer)</td>
</tr>
<tr>
<td>Midterm #2</td>
<td>15%</td>
<td>(Dr. Yip)</td>
</tr>
<tr>
<td>Final</td>
<td>45%</td>
<td>(Drs Gsponer and Yip)</td>
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1. Quizzes and Assignments (online)

   a) There will be online **quizzes and assignments** during the entire course, overall worth 10% of the course grade.

   b) Instructors will communicate when quizzes and assignments become available online.

   c) Results of quizzes and assignments will be made available on Canvas.

   d) A penalty will be applied to late submissions of quizzes and assignments.

2. Midterm Examinations (in-person, paper-based)

   a) There will be **two** midterm exams, worth 30% and 15% of the course grade.

   b) Past midterm examinations will **not** be made available.

   c) All students should be able to provide and show their student IDs.

   d) Marks will be posted on Canvas.
e) There are no make-up/deferred exams. For students who could provide an appropriate medical/academic excuse for missing a midterm exam, the final exam will be reweighted accordingly. Otherwise, a mark of 0% will be recorded for the missed midterm exam.

3. Final Examination (in-person, paper-based)

a) The final exam will be worth 40% of the total BIOC 402 course mark. The final will cover all course material.

b) Past final examinations will not be made available to students.

c) All students need to provide and show their student IDs at the exam.

d) After the December examination period, you can access your grades online at the Student Service Centre.

e) Students who miss the final examination because of medical, emotional or other problems must inform the Dean of Science Office as soon as possible. Non-science and graduate students must contact their appropriate Faculty Offices. Only students having a justifiable reason for their absence, acceptable to those Offices, will be eligible to take a deferred examination.

UBC policies will be strictly followed during the writing of exams. Refer to the Academic Honesty and Standards section in the UBC calendar for more information.
# Lecture Schedule (Fall 2021)

**J. Gsponer ...........**
- Wednesday, September 8
- Friday, September 10
- Monday, September 13
- Wednesday, September 15
- Friday, September 17
- Monday, September 20
- Wednesday, September 22
- Friday, September 24
- Monday, September 27
- Wednesday, September 29
- Friday, October 1
- Monday, October 4
- Wednesday, October 6
- Friday, October 8
  - **Monday, October 11** \(^{\text{Thanksgiving Day (University closed)}}\)
- Wednesday, October 13
- Friday, October 15
- Monday, October 18

**Wednesday, October 20** \(^{\text{Midterm examination #1}}\)
- **No tutorial**

**C. Yip ......................**
- Friday, October 22
- Monday, October 25
- Wednesday, October 27
- Friday, October 29
- Monday, November 1
- Wednesday, November 3
- Friday, November 5
- Monday, November 8
  - **Wednesday, November 10** \(^{\text{Midterm Break (no lecture)}}\)
  - **Friday, November 12** \(^{\text{Midterm Break (no lecture and no tutorial)}}\)

**Monday, November 15** \(^{\text{Midterm examination #2}}\)
- **No tutorial**
- Wednesday, November 17
- Friday, November 19
- Monday, November 22
- Wednesday, November 24
- Friday, November 26
- Monday, November 29
- Wednesday, December 1
- Friday, December 3
- Monday, December 6