

## BIOCHEM 4C03 – Inquiry in Biochemistry 2023 WINTER Term

**Instructor:** Dr. Russell E. Bishop (bishopr@mcmaster.ca)

- **Instructional Assistant:** Martina Martinez Pomier (martik39@mcmaster.ca)
- **Instructional Assistant:** Matthew Sguazzin (sguazzm@mcmaster.ca)
- **Office hours: upon request**

### Course Description

Broader aspects of biochemistry such as those relating to food, drugs, health and environment discussed in small groups. Group and individual projects, seminars and lectures as appropriate to the subject matter.

**Prerequisite(s):** Registration in Level IV or above of an Honours Biochemistry program

**Antirequisite(s):** BIOCHEM 4B06 A/B, [4F09 A/B](#), 4P03, 4R12 A/B, [4T15 A/B](#), [4Z03](#), [ISCI 4A12 A/B](#)

### Materials & Fees

**Required Materials/ Resources:** There is no required materials.

### Course and Learning Objectives

#### Learning Objectives

One objective of the course is to enhance the ability of students to understand scientific findings and methods reported in primary journal articles and to communicate their content in oral presentations as well as via WIKI pages ([https://wiki.mcmaster.ca/BIOCHEM\\_4C03/start](https://wiki.mcmaster.ca/BIOCHEM_4C03/start)). Another key objective is to teach students how to write a grant proposal by building on current knowledge in the scientific literature.

Since most of the activities will take place in groups, students should also gain experience of teamwork and personal interactions in the working environment.

### Course Overview and Assessment

#### Time of lectures, meetings and student presentations:

There is a single in person session every Thursday from 2:30 pm to 5:20 pm. The course starts on Jan 12 and ends on April 6, 2023. The midterm recess occurs between Feb 20 and Feb 26. No lectures or

meetings with the students will occur during the midterm recess. The schedule for the lecture periods serves primarily to reserve a time and place for students to meet with the instructor or teaching assistants. A draft schedule of events and due dates for assignments is shown below.

|        |   |
|--------|---|
| Thur   | 2:30 pm - 5:20 pm; PGCLL B131             |
| 12-Jan | Introduction Lecture                      |
| 19-Jan | Group Meeting with TA                     |
| 26-Jan | Group Meeting with TA                     |
| 2-Feb  | Group Presentation One/PGCLL B131         |
| 9-Feb  | Group Meeting with TA                     |
| 16-Feb | Group Meeting with TA                     |
| 23-Feb | Mid-term recess                           |
| 2-Mar  | Group Presentation Two/PGCLL B131         |
| 9-Mar  | Group Meeting with TA                     |
| 16-Mar | Group Meeting with TA                     |
| 23-Mar | Group Meeting with TA                     |
| 30-Mar | Group Meeting with TA                     |
| 6-Apr  | Research Proposal Presentation/PGCLL B131 |

*This lecture schedule is based upon current university and public health guidelines and may be subject to changes during the term. Any changes to the schedule or course delivery will be communicated on the course announcements section on Avenue to Learn. Please check the announcements prior to attending class.*

**Group Assignment:** Available at A2L

### Course Communication:

Communication between the instructor or teaching assistants with the students will occur via Avenue to Learn (A2L), and McMaster Email. Students should check their email daily to ensure that they do not miss any events scheduled at dates/times and locations other than those noted in the schedule above.

### Course Information and Requirements:

Students are randomly grouped and assigned a research topic related to **Bacterial Cell Envelope Biogenesis** by your TA. Assigned group leaders are responsible for uploading files on behalf of the group. Students should identify a recent high-profile full-length publication(s) on their topic. For example, a publication featured in the News and Views section of a high-impact journal such as Science, Nature or Cell is likely to be suitable. Students must obtain approval from their TA for their choice of publication(s) well in advance of their first presentation. The teaching assistant will subsequently meet with the students to ensure that the student selected appropriate research articles on their assigned topic. The scientific literature associated with the research topic will serve as the foundation for two oral student presentations based on the content of the primary journal article(s).

The initial student presentation will be of an introductory nature, structured along the lines of a scientific abstract, and will set the stage for the second presentation, which will require the students to recount the original findings (results and relevant methods) of the article. The background provided in the Abstract and Introduction and any reviews or original articles cited therein should serve as the foundation for the first presentation. The original figures and tables from the chosen article(s) may be used directly as

the content for the second presentation. Students may simplify the figures and tables in the article to highlight points of interest they wish to convey to the audience.

The first presentation should not exceed 20 minutes in duration with 5 minutes for questions and comments from the audience. Audience participation is required. The second presentation should not exceed 20 minutes with 5 minutes for questions and comments from the audience. Generally, a single Powerpoint “slide” will take at least 1 minute to present. Due to time constraints on scheduling, each student presentation will be strictly limited to the periods cited above.

Powerpoint files should be uploaded to A2L (discussion folder) 8:30 am on the day of presentation and Wiki pages should also be finished by the same time (8:30 am).

It is up to each group to decide how many people will be giving the presentation and the non-presenting members (if any) will be responsible for answering questions. Please contact the instructor if you have any concerns in giving a presentation.

Each student will contribute to the evaluation of other groups' presentations and wiki write-ups. Please submit your evaluation file to A2L before the end of the day of presentation.

The written grant proposal should be centered on the assigned research topic and must build on the findings (results) of the selected article. The grant proposal should comprise a scientific abstract, an introduction to the field, rationale for the proposed study, a hypothesis, 2-3 specific aims and references. A brief description of the methods to be used for the proposed study should be included in the specific aims section. Your TA will provide information on how to prepare a scientific proposal.

In keeping with the new regulations concerning late withdrawal from a course, the grant proposal is considered equivalent to a final exam.

### Assessments Overview:

| Grade Item                         | Deadline Dates  | Weight (%)  |
|------------------------------------|---|-------------|
| First presentation ppt/wiki        | Feb 2, 8:30 am  | 28          |
| Second presentation ppt/wiki       | Mar 2, 8:30 am  | 28          |
| Grant proposal presentation ppt    | April 6, 8:30 am  | 16          |
| Grant proposal writeup             | April 6, 8:30 am  | 20          |
| <b>Group Marks</b>                 |   | <b>92%</b>  |
| Peer Evaluations (3 ppts, +1 peer) | Feb 2, Mar 2, Apr 6, Apr 6                              | 2% each= 8% |
| % Group Mark                       | TA's notes on student's participation + peers' comments |             |
| <b>Final Marks</b>                 | <b>8% + Group Mark x % Group Mark</b>                   |             |

Marks breakdown for each presentation/wiki:

|                   |     |
|-------------------|-----|
| Oral Presentation | 10% |
| Presentation ppt  | 6%  |
| Wiki pages        | 12% |

Students will submit their presentations (A2L), Wiki and grant proposal (email to TA) by the time identified above. The mark for late upload of the presentations or grant proposal will be reduced by 2.0% for each hour following the due time.

Students will submit their evaluation of other groups' presentations and Wiki pages by 11:30 pm of the day of presentation (Feb 2, Mar 2, Apr 6). Students will submit their evaluation of their own group members contribution to group work by 11:30 pm of April 6.

Students are expected to participate verbally in discussion to gain participation marks. Since an individual's mark can be substantially reduced from group marks by teaching assistants according to peer evaluations and his/her record of participation, it is imperative that you communicate with your teaching assistant as soon as you feel that an individual in your group is not contributing to group work such that we can assist/communicate with that individual.

### Schedule of Events:

**January 12:** First lecture. The instructor will describe the course objectives, organization and student evaluations.

**January 12:** Students will be assigned a TA and are encouraged to communicate with their TA as soon as possible.

**January 12:** Each TA will identify a **Bacterial Cell Envelope Biogenesis** related topic for each group and communicate the topic title to their assigned students.

**January 18:** Students will email their TA with the titles of the article(s) representative of their assigned topic by 11:30 pm. The TA will provide feedback to the students regarding the appropriateness of the selected articles in group meeting in the following day.

**Feb 2:** Students will upload their first presentation ppt to A2L by 8:30 am. Student presentations take place this week. Students will submit their evaluation of other groups' presentations and Wiki pages by 11:30 pm.

**Feb 20 – 26:** Midterm Recess

**March 2:** Students will upload their second presentation ppt to A2L by 8:30 am. Student presentations take place this week. Students will submit their evaluation of other groups' presentations and Wiki pages by 11:30 pm.

**April 6:** Students will upload their grant proposal ppt to A2L and email their TA a PDF of their grant proposal by 8:30 am. Students will submit their evaluation of other groups' presentations and Wiki pages by 11:30 pm. Students will also submit peer evaluation of other members' contribution to group works by 11:30 pm.

### Requests for Relief for Missed Academic Term Work

[McMaster Student Absence Form \(MSAF\)](#): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work".

### Academic Accommodation of Students with Disabilities

Students with disabilities who require academic accommodation must contact [Student Accessibility Services \(SAS\)](#) at 905-525-9140 ext. 28652 or [sas@mcmaster.ca](mailto:sas@mcmaster.ca) to make arrangements with a Program Coordinator. For further information, consult McMaster University's [Academic Accommodation of Students with Disabilities](#) policy.

## Academic Accommodation for Religious, Indigenous Or Spiritual Observances (Riso)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office *normally within 10 working days* of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

## Academic Integrity

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

**It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](#).

**The following illustrates only three forms of academic dishonesty:**

- plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

## Authenticity / Plagiarism Detection

*Some courses may* use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. **All submitted work is subject to normal verification that standards of academic integrity have been upheld** (e.g., on-line search, other software, etc.). For more details about McMaster’s use of Turnitin.com please go to the [McMaster Office of Academic Integrity’s](#) webpage.

## Conduct Expectations

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities \(the “Code”\)](#). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere

with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

### Copyright and Recording

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

### Research Ethics -N/A

### Extreme Circumstances

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.