

MSFP 2021
General Information for Faculty Mentors

Due to the unprecedented impacts of the COVID-19 pandemic, the program is scheduled to be online.

NSF Macromolecular Structure and Function Program 2021

July 15 – August 6

Online, virtual summer undergraduate research and mentoring program

Program goals

The objectives of MSFP are 1) To provide a mentored research experience in Macromolecular Structure and Function and 2) To provide training in professional skills that will assist the participants in pursuing a degree and career in STEM. This fully virtual project involves faculty at four geographically-distributed institutions specializing in diverse but complementary approaches to study macromolecular structure and function.

Our intellectual focus is Macromolecular Structure and Function. In recent years there has been a dramatic expansion in the number of known macromolecular sequences and structures. Our ability to make full use of this information has been hindered by the fact that biochemical or biophysical characterization is feasible with only a small percent of them, but advances in computer-based algorithms and analytical methods provide complimentary methods that greatly expand our abilities to learn what macromolecules look like, what they do, how they perform their functions, and how they are regulated. Computational methods can also be used to elucidate molecular mechanisms that are beyond the resolution of experimental techniques. Our interdisciplinary team of mentors are experts in a variety of computer-based methods and will provide projects that enable participants to learn about cutting edge research questions, approaches and methods. At the same time, a common research theme helps enable a cohort experience for the participants who will work together during the first Welcome Week, during workshops, and while preparing oral, written and poster presentations of their research and results.

Contact information:

PI/Director: Constance (Connie) Jeffery, Associate Professor, Dept. Biological Sciences, University of Illinois at Chicago, Chicago, IL, 60607 cjeffery@uic.edu

Near-peer Mentor: Nicole Curtis, graduate student, Dept. Biological Sciences, University of Illinois at Chicago, Chicago, IL, 60607, ncurtis2@uic.edu

Files can be downloaded from Box site (invitation from cjeffery@uic.edu)

MSFP Web site: <http://jefferylabuic.weebly.com>

Faculty Mentor Role

Faculty mentors are expected to provide students with projects that allow them to learn the research process in their field. Mentors are expected to monitor and manage the progress of the research. The mentor should work with the student to design the research project. The goal is that the student will have a finished research paper and an oral presentation that will reflect his/her understanding of all phases of this process. Students must be engaged in actual academic research. Students who may be experiencing difficulties should be able to receive feedback and help directly from the faculty mentor. Each faculty member who serves as a mentor is expected to fulfill the following basic requirements:

- Work with his/her student during the entire program period;
- Complete written evaluations of the student's progress (the evaluation forms will be supplied by the SROP staff);
- Assist the student in preparing and give written approval of the following documents:
 1. An abstract of the research project
 2. A poster
 3. The final research report
 4. The presentation for the Research Symposium
- Attend the Research Symposium. Please be present at least during their student's presentation.
- Inform the PI if taking a vacation or attending a conference so that she can monitor the student's progress in your absence.

Faculty-Student Meetings

Please meet with your student each week to give her/him feedback, new assignments and check on her/his progress. Your student should know how to contact you if she/he has a question or needs your signature.

Time Away

If you plan to take an extended leave of absence (a week or more at one time), please let the MSFP Director know so that we can offer support during that time. If this occurs, please leave a graduate student in your place to continue guidance and instruction for the student. There should be a way for the student and program staff to contact you in case of an emergency.

Evaluations

Please use the Mentor Evaluation form to document your student's progress and communicate any problems that you think need the program staffs attention. Please do not hesitate to contact the director at cjeffery@uic.edu if there is

something that you feel cannot wait to be discussed in your evaluation. The evaluation forms must be signed by you the student's faculty mentor.

Student Work/Summer School Restrictions

Students are not allowed to attend summer school or hold a job during the summer. The purpose of the MSFP is for the students to have an intensive, paid research experience, which requires a minimum commitment of 40 hours a week.

Absences

Students should have all absences during the week approved by both the faculty mentor and the MSFP Director. Absences should be planned in advance, if possible. The MSFP Staff should know about all planned absences during the first week of the program. Also, the MSFP staff should be notified immediately if a student misses an appointment with you, even if later you determine that the absence was reasonable.

Abstracts

Prior to the Symposium, by Friday, July 23, students will need to submit a final abstract for review by the mentor as well as by the SROP staff. The student should type the abstract using Microsoft Word and submitted on the Box site. The students' final abstracts will be included in the Symposium booklet that will be distributed at the conclusion of

Final paper. Mentors should provide students with guidelines regarding the proper format and form of documentation for the research paper. The paper should be approximately 10 pages, excluding the title page, appendices and bibliography. The paper must be typed.

We request that you send an e-mail confirmation (*to cjeffery@uic.edu*) of your approval if the paper is acceptable before your student receives his/her final stipend.

Other General Guidelines

1. Because some of the students in the MSFP have neither conducted research nor worked closely with a faculty member, mentors should be willing to introduce the students to the requirements of academic research within their discipline (i.e. from conducting the actual research, to producing a scholarly text).
2. Each mentor is expected to meet with his/her student at least two hours per week. Of course, if the mentor perceives that the student is having difficulties, he/she should be willing to spend additional time with the student. Students are expected to commit a minimum of 30-40 hours weekly to their research project.
3. Please note that while the Program does not object to the student participants working with graduate students, graduate students should not perform the entire role of the faculty mentor.
4. Each mentor should become familiar with the student's scholarly strengths and weaknesses. One of the aims of the MSFP is to determine a student's potential for pursuing an advanced degree. Throughout the summer, the mentor should address the issue of graduate school with the student and provide them with information about their graduate program.
5. Any mentor who encounters difficulties with his/her student, (e.g., poor attendance, inappropriate attitude) should contact the MSFP Director immediately.

MSFP Schedule

There are a few important events that we would like to bring to your attention.

Faculty-Student Connection

Over the years, we have noticed that students who are greeted by their faculty (or a representative from your department) have less anxiety early on about their summer experience. Please reach out to your assigned SROP student and begin discussions about your summer research plans. (a graduate student is an ideal alternative if a faculty member is unavailable at that particular time)

Research Symposium

All faculty mentors are encouraged to attend the Research Symposium, which has been scheduled for Friday, August 6. (Virtual: Time TBA). The students should be encouraged to present their work to a select group of individuals from your department as practice before this very important event.

Student Participant Meetings, Career Preparation and Professional Development Workshops

Example Week Full-time mentored research project
Participant meetings with faculty mentor
Participant Group Meeting/Workshop/Social Activity with PI and near-peer mentor
Individual Wellness Check-in with near-peer mentor
Professional Development Workshop
Assignment Due
Short evaluations filled out (weeks 3, 6, 8)

Weekly Student Group Meetings with the PI and near-peer mentor All MSFP students are required to attend weekly meetings of the MSFP student cohort with the director and near-peer mentor on **Tuesdays at noon Chicago time**. These meetings give us an opportunity to support student progress and make sure that students are adjusting well to the program. The meetings are for networking, helping participants remain connected, discussing research, informal exchanges of information, supporting student progress, and making sure that students are adjusting well to the program. Some of the slots will be used for workshops or social events. Usually on Tuesdays, but please see schedule.

Weekly Individual Wellness Check-ins with the near-peer mentor All MSFP students will be assigned a Near-peer mentor (graduate student who will help the student participants and provide assistance to students who need help with their writing). The MSFP students will have a short weekly meeting (10 – 15 minutes) with their Near-peer mentor. They will help in coaching the students in planning and completing assignments and identifying concerns and challenges. Varying times.

Professional Development Workshops

All the student participants are required to attend Workshop sessions throughout the summer. These workshops are **Thursdays from noon to p.m.** These meetings give the students invaluable instruction about topics such as: Oral and Written Scientific Communication, Diversity, Ethics, Careers in STEM, Graduate School, etc. These sessions are mandatory, so we request that labs adjust your work calendars to ensure the student will be able to attend. Usually on Thursdays, but please see schedule.

Professional Development Workshops

Introduction to Research

- (1) Ethical issues and responsible conduct of research,
- (2) Diversity Workshop
- (3) Career Panel with guest speakers about career paths and opportunities in academia, government labs, and biotechnology companies,
- (4) Graduate Student Panel to learn about the application process, what to expect in graduate school, applying for fellowships, finding the right advisor, and strategies for success,
- (5) Creating and using an Individual Development Plan.

Workshops in oral and written scientific communication include

- (1) Preparing effective oral presentations, with
 - a. Workshop for 2-minute Elevator Pitch
 - b. Workshop for Research Symposium presentation
- (2) Written Communication skills including an
 - a. Abstract Prep Workshop
 - b. Introduction to Writing and Reading Research Papers (for preparing a Final Paper)
 - c. Workshop for Creating/Presenting a Poster.

Assignments (see due dates on Calendar)

Pre-survey

Photo for abstract book

Elevator pitch (give during one of the workshops or group meetings)

3 Evaluations

Final abstract for Abstract book

Paper

Poster

Powerpoint file of talk

Give talk at Research Symposium

Project Evaluation and Reporting. To check the project is progressing satisfactorily, short questionnaires will be filled out by the participants and mentors (weeks 3, 6, 8). Participants will also be encouraged to give feedback at weekly meetings with the PI and near-peer mentor.

A virtual Research Symposium and Award Ceremony for participants, mentors, and members of the mentors' labs. Participants will present their research accomplishments as an oral presentations and receive feedback. Participants will receive certificates for participation and an abstract booklet.

After end of program:

Overall assessment will use the NSF's web-based Student Assessment of Their Learning Gains Undergraduate Research Student Self-Assessment (SALG URSSA). Students will be tracked after the program in order to determine career paths.

Other Resources

Fostering a Productive Faculty-Student Relationship

Good Supervisory Practice Checklist for Faculty and Student

- Is there a departmental document available to the student and the faculty mentor that describes the department's view on good supervisory practice?
- Will the student's daily activities, productivity, and research project be assessed by people other than the faculty mentor?
- Does the faculty mentor see the student often enough?
- Are there regular occasions when both the student's progress and background knowledge of the subject are assessed?
- Do both the faculty mentor and the student see the assessment procedure as satisfactory?
- During the occasions on which the student has to make public presentations, has the student been adequately prepared and are these presentations satisfactory for the discipline in which the student is working?
- How is the topic of research refined in the first two weeks of the program?
- Has a schedule/time line been established to ensure that the student completes the necessary tasks in a timely manner?

Checklist for Students to Ensure Productivity

- Have you tried to plan your work systematically?
- Have you identified the major difficulties?
- Do you understand the relevant references?
- Are your records in good order and could you answer a question on something you did two weeks ago?
- Have you drafted the first version of any portion of the work that has been completed?
- Do other people find your written work difficult to understand?
- Are there any tables, figures, or other matters that could usefully be prepared at an early stage?
- Do those individuals in the department/laboratory you are working in consider you a productive individual/member of the research team?

***Adapted from the Council of Graduate Schools' Supervisory Practice Handbook
Thank you so much/or being such an imperative part of the MSFP! You are much appreciated!*

**Macromolecular Structure and Function Program
2021**

Faculty Mentor Report

Due: July 2th (#1), July 23 (#2), August 3 (#3)

Please submit the faculty mentor reports on the listed dates above. By the end of week 8, a total of 3 faculty mentor reports should be uploaded. Thank you for working with our scholars!

Faculty Mentor _____

Student _____

Week ____ Average Weekly Contact Hours _____

1) How well has the student met your expectations to date?

Low **High**
1 2 3 4 5

Please explain

2) What preparations have you and the student been making on the symposium presentation and final research paper?

Please explain

3) Has the student completed all assignments in a timely manner?

Please explain

4) Has the student come to your meetings prepared to work on the research project?

Please explain

5) Please upload these forms to <https://uofi.box.com/s/1nuhemvitfjyaccael7ttepz7zfxno>. If you encounter difficulty uploading your report, please email them to Connie Jeffery at cjeffery@uic.edu

Faculty mentor's initials: ____

Faculty mentor's signature: _____

Date: _____

E-mail address _____