Chemical and Biomolecular Engineering Graduate Student Mentoring Guidelines

I. Introduction

Although mentoring students is key at all educational levels, the mentor-mentee relationship should be strong during graduate school as the faculty guides the student through their research toward an M.S. thesis or Ph.D. dissertation. This requires guidance and training of the student and should also include advice toward the next steps in the student's career. This document outlines the guidelines for mentoring from the department and faculty. It then concludes with the responsibilities and expectations for the student in this relationship.

II. Mentoring from Department

The department administration (Director of Graduate Studies (DGS) and Coordinator of Graduate Studies (CGS) and more senior graduate students serve as potential mentors for all students. Listed below is a standard plan for mentoring of graduate students following the track of incoming students without an advisor. If a student has a paired advisor the first semester, the research advisor fulfills the duties of the DGS.

    A. First Year – First Semester

        1. DGS and CGS mentoring and advising: For the first semester, graduate students do lab rotations as part of the CHBE608 course to gain experience in the labs of potential research mentors/advisors. The DGS will advise and mentor students during this period providing help with the first semester class registration, guidance on research during the lab rotation, guidance on choosing an advisor, and other mentoring/advising needed or requested by students. The CGS will also support advising students with details of how to register, necessary documents, etc.

        2. Advisor Selection: This occurs between the first two semesters and is based on students rotating in labs and filling out a form on preferred advisors. This is a mutual decision between the student and mentor. Top choices by the student are not guaranteed, but typically one of the top 3 selections on the list is assigned. The DGS and chair serve as sources to guide the student if advisor selection is a concern or none of the student's selected advisors can support the student for their research.

        3. Individual Student Mentors: Each incoming student will be paired with a student mentor, working with the Chemical Engineering Graduate Association (CGA) when possible. This student mentor will be matched based on general research interest. Regular informal meetings between the mentor and new student will be scheduled three times the first semester (early/mid/late). When possible, students from underrepresented minorities (URM) or groups will be encouraged to have a paired student mentor in this category to provide a URM perspective to their time as a graduate student in the department. However, all mentors will be selected based on the incoming students' needs.

    B. First Year – Second Semester

        1. Faculty Mentor: The faculty advisor will serve as the main faculty mentor to the student and details of this mentoring are covered in Section III and expectations for students in Section IV.

        2. DGS: The role of the DGS is to continue to provide support for the student with policies

and students transitioning to working in a research lab.

    3. Individual Student Mentor: The paired student mentor from the first semester will continue to have a formal role in mentoring the first-year student. Regular informal meetings will be scheduled three times the second semester (early/mid/late) by either departmental events encouraging mentor/mentee interaction or student-initiated individual meetings.

C. Subsequent Years as a Graduate Student

The department (DGS, CGS, CGA) will continue to be an avenue of support for students during their time as a graduate student. Although the faculty research mentor(s) will be the main source of support, the DGS will serve as the first point of contact if issues arise that cannot be resolved by the faculty mentor. Students are also welcomed to seek advice from the departmental sources (CGA, DGS, or other faculty) to supplement advice from their advisor(s). The department will also notify students of opportunities for travel support, departmental awards, teaching opportunities, job opportunities, fellowships, as they become available and encourage students to apply.

D. After Thesis/Dissertation Defense

The department will ask students who have completed the requirements for their degree to fill out an exit survey. This will provide the department information regarding their next steps in their career but also provide feedback on aspects of the ChBE graduate program and mentoring that will help improve the development and mentoring of future students.

III. Faculty Mentor Guidelines

A. Communication

    1. Regular Meetings: Faculty are expected to have regular meetings with graduate students. The format of these meetings varies between labs (one-on-one, small group, or larger group meetings). These meetings will discuss research progress and challenges, teaching duties (if applicable), and professional development (see Section D). Depending on the situation and location, these meetings are encouraged to be in person but can also occur on-line. While the frequency of meetings will vary, faculty are expected to meet with each student at least once a month. During these meetings expectations will be clearly described for the progress of the student's research toward the Ph.D.

    2. Additional Communication: The mentor should allow for other methods of contact beyond live communication. This might involve traditional email communication, chat, or messaging platforms (WeChat, Slack, etc.). A mentor should notify the student of the preferred method of contact and the expected time to respond. While times to respond can vary depending on the request and/or faculty schedule, it is expected that a faculty will respond within 2 days.

    3. Treating Students with Respect: Faculty mentors should be respectful of mentees and communicate with them in a professional manner. Mentors should remember that students are still learning, and it is their duty to help the students learn. Critical feedback on research is essential to the development of the graduate student and
research project, but criticism should be given in a courteous and constructive manner. Students will report inappropriate (uncourteous or unconstructive) behavior to the DGS and/or Chair and potential disciplinary actions will be taken.

B. Fostering Excellence in Research, Ethical Behavior, and Independence

   1. Research and Independence: A faculty mentor's duty is to train a graduate student in what is needed to be an independent research scientist and engineer. A mentor will promote and provide positive feedback for new and important findings from a student during regular meetings with the student. When possible, the mentor will encourage a student to develop their own ideas applied to their funded project(s), as well as developing their own research projects. Therefore, by the end of their time as a student, students will demonstrate the ability to perform independent research appropriate to their degree level.

   2. Ethics in Research: The faculty mentor must also pay careful attention to ethical behavior and train the student in the appropriate behavior. If there are signs of plagiarism or fabrication in writing and/or data collection, the student will be warned that further actions will have severe consequences (loss of funding and/or being expelled from UMD).

C. Expectations and Growth

   1. Expectations in Research Progress: The faculty mentor should provide input during regular meetings with the student on the expectations of what should be done in a given time frame. If research goals are not met, the mentor should work with the student to help the student reach the stated goals. If the student is making unreasonable progress based on a plan developed by the mentor, this could lead to grounds of loss of funding and poor progress toward the degree. The mentor will notify the DGS to resolve the issue and the DGS will work with the student to determine options in the program to complete the degree or plans to leave the program.

   2. Research Growth of Student: The expectations provided by the mentor should help the graduate student grow in their ability to perform independent research. Although initially the expectations will be strongly mentor-driven, the goal will be to transition to where the graduate student develops their own expectations associated with their research projects in consultation with the mentor.

D. Professional and Career Development

   1. Discussion of Career Paths with Student: The faculty mentor should discuss the student's desired career paths and provide input on how to best reach the student's goals and give advice on career paths, as requested by the student.

   2. Formal Development Plans: The faculty mentor will encourage the development of formal individual development plans (IDPs). The graduate school has individual IDP templates for students, and *Science Careers* offers another format available as myIDP. Science Careers also provides a form focused on research skills and professional development that mentors can use to assess and guide students.

E. Know the Policies and Resources for Students
The faculty mentor should also be aware of the various policies and resources available to students to guide them through their time as a student at UMD. Some important links are provided below.

- Departmental details for the M.S.

- Departmental details for the Ph.D.

- Graduate School Deadlines

- Graduate School Policies

- Graduate School Academic Counseling

- Graduate School Grad Student Circles ([Mental and other resources](#))
- UMD [Counseling Center](#)

F. Understand Challenges Related to Diversity, Accessibility, and Work-life Balance

1. Diversity: As mentors, faculty should be aware of the challenges that students from underrepresented groups face. These challenges can influence performance in academic and job/research activities. Faculty are encouraged to look at resources available from the [Office of Diversity & Inclusion](#). As mentioned above, the department will encourage URM students to be paired with more senior URM mentors so that students can discuss their unique issues with others that may have faced similar challenges. As a URM student becomes more experienced, they will be encouraged (but not required) to help other URM students in the program.

2. Accessibility: If a student requires accommodations, the program and mentor will work with the student to accommodate any restrictions or modifications due to a disability.

3. Work-Life Balance: A positive work-life balance is essential during graduate school and the mentor should respect the mentee's time outside of work. The mentor should encourage students to be actively involved in activities outside of the research lab. For students dealing with specific needs that require immediate or sustained schedule interruptions (dependent care, personal health, military service, childbirth, etc.), the mentor will provide a flexible schedule (when possible) to accommodate their needs.

IV. Student Responsibilities

A. Communication

1. Mentor: Communication with your mentor will be key to the success of your training at UMD. The methods of communication vary between groups, but you should come to your regular meetings prepared to discuss and show progress in your research and specific areas previously requested by the mentor. Outside of regular meetings, you should use the methods of communication requested by the mentor (email, Slack, WeChat, etc.).

2. Research/Collaborative Group: For most students, you will be part of a larger research group and/or a collaborative effort to accomplish a set of research goals. You will need to learn how to effectively communicate your research to others in the mentor's group and others outside the group. You should treat all with respect and work as a team.

3. Department: You are encouraged to communicate with the department (CGS and DGS) for questions and/or concerns with regards to the program. Most policy information is best asked to the CGS. If there are issues with a policy or the research environment, you are encouraged to discuss this with the DGS and, if needed, the Chair of the department. Nearly all forms needed for the program should be done electronically and signed by all parties in this manner.

B. Relationship with Mentor

1. Being Respectful: You should be respectful of your mentor's time and communicate with your mentor in a professional manner. If you have a scheduled meeting with your advisor, arrive on time and prepared for your meetings. If you cannot make the scheduled time, notify the mentor in a timely manner.

2. Responding to Feedback: Critical feedback of research is essential to the development of

the graduate student and research project. The student should recognize that mentors have more knowledge and experience and are helping the student develop. Students should be open to feedback on their research and provide counterarguments if they feel the mentor is incorrect. This should be done in a respectful manner.

3. Taking the initiative: If you feel that you need to discuss a topic with your mentor outside the regular meeting time, you should take the initiative to ask for help and/or schedule a meeting.

4. Issues with Mentor: If you are having issues with your mentor that cannot be resolved, please contact the DGS to discuss your concerns. If your mentor is the DGS, then contact the Chair of the department.

C. Professional and Career Development

1. Discussion of Career Path with Mentor: You should routinely discuss plans for your career after graduation with your mentor. This might also relate to research projects that you get involved in to gain experience necessary in a given future job sector.

2. Formal Development Plans: You should develop your own formal individual development plans (IDPs). The graduate school has individual IDP templates for students and Science Careers offers another format available as myIDP. The goal is to get you to formally think about what you need to enter your desired job after graduation and identify areas where your mentor may be able to assist you.

3. Mentor Network: You should develop your own mentoring network consisting of other students, researchers, and faculty. This will help you develop in research but also future career goals.

D. Know School Related Policies

You should also be aware of the various policies and resources available to guide you as a student at UMD. Some important links are provided below.

- Departmental details for the M.S.
- Departmental details for the Ph.D.
- Graduate School Deadlines
- Graduate School Academic Policies
- Graduate Research Assistant Policies (appointment, renewal, time away from duty, etc.)
- International Student & Scholar Services provides info on policies and forms.
- Graduate School Academic Counseling
- Graduate School Grad Student Circles (Mental and other resources)
- UMD Counseling Center