

# Chemical and Environmental Engineering-specific Advising Guidelines

Fall 2022

The intellectual relationship between student and faculty advisor and committee are the most important relationships of this type that students form in their time at Yale and often the most significant they form in their careers. As other sources provide [detailed timelines and milestones for progress through the program](#), [address professional conduct, ethics and harassment](#) and provide an overview of the [Graduate School Advising Processes](#), the aim of this document is to provide guidance on key aspects of advising within the Department with the goal of promoting clear expectations of all parties involved.

## Advising Structure

### ● Advisor of Record:

- First year: Provisional advisor
- Subsequent years: Research group leader (PI)
- Expected to hold a primary appointment within the Department; exceptions can be made with approval of the Director of Graduate Studies.

### ● Committee:

- First two years: Provisional committee
- Year three and onwards: Thesis committee

### ● Graduate Team

- Director of Graduate Studies (DGS)
- Graduate Registrar

## Funding Structure

All students in the School of Engineering and Applied Science (SEAS) are funded their first year by either University or External Fellowships. By June 1 of their first year, students are expected to identify an academic advisor (PI) who can financially support their research for the remainder of their time at Yale. For most students this will take the form of a Research Fellowship that provides the stipend and tuition, as well as the equipment, supply and travel budget needed to carry out their work; for students supported by external fellowships it is only the latter. External fellowships often cover less than the time required to degree, and so students starting on such fellowships frequently transition to a Research Fellowship towards the end of their time here. As detailed in your admission letter, all students in good academic standing are guaranteed support for at least five years; in certain outstanding cases this support may take the form of a University Fellowship. Such cases include: gaps in PI funding; PI leaving the University; and in extraordinary circumstances, a need for a student to change research groups.

## **Identifying an Advisor**

No student admitted to the Department is tied to working with a specific PI. Each student is assigned a first-year provisional advisor who acts as an initial point-of-contact for providing advice on courses and potential Special Investigations (SIs) and long-term advisors. During each semester of the first year, students perform a research project, SI, for course credit in a PI lab. Students are expected to choose a long-term advisor for whom they have done an SI; if a student does SIs with the same PI each semester, it is assumed that the PI will become their advisor of record and will support their research through the remainder of their time at Yale. If a student does SIs with two different faculty, the student is expected to continue working with one of the two faculty, not necessarily the Spring term SI advisor. Thus, selecting SIs is an important step. Students are encouraged to talk to a range of faculty whose research may interest them, and to students and postdocs in the various research groups to get a sense of what it's like to work in each group. While specific research interests are an important consideration, students are encouraged to consider additional factors. In particular, students who need to keep a set schedule may not be a good fit for certain types of experimental work that may require travel to user facilities or periods of work that can extend past typical working hours. It is best to have an open and honest discussion about such issues prior to committing to an SI. Students may be co-advised by two PIs. In such situations, it is suggested that the student and PIs reach an understanding of the form this takes and the division of effort between the research groups.

## **Defining a Thesis Project**

The University requirement is, "The dissertation should demonstrate the student's mastery of relevant resources and methods and should make an original contribution to knowledge in the field." A key element of this demonstration is defining an original problem, the approach to solving it, and the scope of the work. It is expected that students will lead this effort in consultation with their advisor and thesis committee, but within the constraints imposed by the Funding Structure detailed above. Research grants that at least partially cover student expenses have specific objectives and long-term goals that must be met to satisfy the funding source's expectations and needs. While this defines the research area, there is sufficient flexibility for student creativity to define their research objectives, develop a specific research plan to meet them, and adapt to the new knowledge gained in the course of the work. The specifics of the thesis project are formally laid out in the student's fifth semester in the Prospectus and presented and defended as part of the Area Exam. Thereafter, progress towards reaching the outlined goals and revisions to the thesis plan are updated annually in the Dissertation Progress Report (DPR) and reviewed by the thesis committee.

## **Committee**

A provisional committee is assigned to each entering student; typically two additional faculty in the department in addition to the provisional advisor. The committee, including the provisional

advisor, provide feedback on student SI presentations and the student's progress and report to the DGS any concerns that may impact the student's viability in the program.

In advance of admission to candidacy in the fifth semester, students in consultation with their PI and with the approval of the DGS select a Thesis Committee. The requirements for the makeup of the committee are detailed [here](#). Additional considerations may include: potential input and collaboration; desire to get a different perspective on the thesis problem; and availability/accessibility.

## **Graduate Team**

The DGS is charged with ensuring that academic and professional standards in the graduate program are maintained and serves as the points-of-contact between student organizations/events and the Department, and between students and faculty in the Department and the Graduate School. Regarding the former, the DGS informs and updates students on requirements, potential issues with non-compliance, and their status in the program. Regarding professional standards, the DGS is the Departmental point-of-contact for students and faculty and will act in accord with University standards for confidentiality.

The Graduate Registrar is tasked with maintaining program and student records. The Graduate Registrar is well-versed in Graduate School processes and helps students navigate requirements, points them in the right direction for forms and paperwork, and lets them and the DGS know if certain paperwork and deadlines have lapsed.

## **Expectations**

### **Study-life Balance**

- Students and advisors should clearly establish basic guidelines for working hours, what can be done remotely and what should be done on-site, time-off, and time necessary for physical and mental health. Students can discuss concerns regarding study-life balance issues with the DGS.
- Students should feel comfortable taking sick days or time off for an emergency. Students should inform their advisor or responsible member of the research team if they need to unexpectedly be away.
- An advisor should let a student know if they are taking an excessive amount of time off and if it exceeds expectations set by the Graduate School; roughly four weeks per year including University and National Holidays. All time off should be arranged with the advisor in advance and should be scheduled to avoid conflicts with commitments and deadlines.
- During the first year of graduate school students are expected to transition from a "school schedule" to a full-time, self-motivated research schedule. For example, the period

between fall and spring semesters and the fall and spring breaks are considered active times of scholarship and research. For the first year transition, expectations should be agreed upon with the faculty SI supervisor.

- Working hours may be subject to best practices in individual groups where these times may be impacted by a lab's research schedule or by a group's collaborations. In this case, working hours may be modified from typical working hours.
- Research expectations may include both research directly related to a student's dissertation research and to the group's research activities as a whole which may extend to servicing and maintaining instruments, instructing new students or visitors to the group, performing measurements, simulations, calculations for which they have particular expertise but may not specifically apply to their thesis research.
- The Department encourages and offers support to student groups for inclusive social and academic activities that enhance the Department culture and environment.

### **Advisor**

- Create a supportive, welcoming and inclusive environment.
- Serve as a role model for ethical practices in research and team management.
- Regularly meet with students to review progress, discuss upcoming research plans, and provide feedback. Respond promptly to student questions, concerns, input.
- Remain open to feedback and be willing to discuss difficult academic ideas and differences of opinion to facilitate all students' success.
- Alert students of potential concerns and provide them a path to address them. Give students opportunity to show improvement.
- Discuss with the DGS and committee members if issues arise related to your student's responsibilities.
- Keep students abreast of developments in the field; relevant research, award and career opportunities; and developments that potentially impact their research direction (e.g., availability of new resources, change in external research funding).
- Guide students' academic and professional development such as writing, delivering talks and seminars, proposal preparation, etc.
- Recognize student accomplishments, give students credit for their contributions internally and externally, advocate for their recognition and career advancement.
- Discuss/advise career plans with students, adapt scheduling (e.g. which conferences to attend) to help students reach goals. Use personal network to assist student placement.
- Be familiar with mental health resources offered by the university so that you can suggest them if your student approaches you for help.

## **Committee**

- Meet with student at least once per year and be accessible to meet more frequently as needed.
- Stay abreast of student progress by reading supplied materials (DPR, Prospectus, etc.); offer candid feedback on progress to both student and advisor.
- Respond promptly to student questions and concerns.
- Moderate student/advisor disagreements. If committee members judge student's concerns about the advisor are serious, with the student's permission seek input from the DGS.
- Provide input on annual student DPR.
- Judge whether the Prospectus and Area Exam meet the standard for Admission to Candidacy, and if and how deficiencies may be adequately addressed. Judge whether Dissertation and Defense meet the standards required to award the degree.

## **Student**

- Complete all course requirements as outlined [here](#).
- Stay abreast of all deadlines and milestones. Allow ample time to schedule Area Exam, Committee Meetings, Thesis Defense. Provide all necessary documents sufficiently far enough in advance that all committee members can be reasonably expected to read them. Ask committee members when they need these documents, and deliver them in a timely manner.
- Maintain clear communication with advisor, keeping them updated on progress, new and ongoing challenges, upcoming deadlines/events, and possible changes to the originally planned goals/milestones.
- Take ownership of your thesis project, stay abreast of the literature and opportunities; don't just follow your advisor's suggestions, develop your plans and refine them with the help of your advisor.
- Be self-motivated. Put the necessary time in because you are excited about your project, have new ideas you want to test, or long-term goals you wish to achieve, not because you have been told to.
- Act professionally: show up on time for all meetings; do not miss meetings without giving notice; do not have unexplained absences; treat your colleagues with respect and in accord with University policies; offer your colleagues your help and support, give them credit for their contributions; abide by all safety rules, if in doubt about safety protocols, stop what you are doing and get clarification.
- Report to advisor any unhealthy dynamics between group members you believe needs attention.

## Professional Development and Job Search

Students can and should discuss and get advice from their advisor(s), committee, DGS and other Department faculty on professional development, job openings and job search strategies. Students are encouraged to start this process early with respect to developing and building a cv and contacts. Recommended steps and department and campus resources are described below.

- During the annual DPR meetings, students should discuss their career goals and distribute and discuss their current cv and get advice on actions they can take to strengthen it.
- Students should take advantage of campus resources:
  - [Writing Center](#) – advice on written job portfolio and cv.
  - [Office of Career Strategy](#)
  - [Graduate Professional Development Support](#)
  - Professional organizations (SWE, equity in the job search)
  - Bring in OCS for a presentation on available resources
  - Try MRSEC style career development seminars, former students, different career paths.
  - Teaching resources, Poorvu center.

## Remediation

Students should discuss academic concerns regarding the direction, performance, available resources, etc. for their research with their committee members. Committee members may offer advice or resources available to them to facilitate progress, or suggest calling a committee meeting with the advisor to resolve differences and plot the best path forward. Concerns about the advising relationship or the work environment should be brought to the attention of the DGS, who will confidentially handle these concerns, and if the concerns violate University policies, direct the student to the appropriate Graduate School Office to file a complaint. If the issue presents a conflict with the DGS, the student may raise the issue with the Department Chair, or get in touch with the Graduate School Associate Dean for Academic Support.