

# Graduate research advising in the Physics Department

Physics Council

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In many cases, the most important relationship a graduate student has is with their research advisor. Different advisors advise in different ways, different students want different advising styles, and it is not the Department's place to specify the details of how students and faculty work together. Nonetheless, the Department does have a set of baseline expectations for both research advisors and graduate students to facilitate their unique working relationships, which are described below.

For research advisors

Upon arrival at MIT, students immediately begin the process of looking for and working with a research advisor. Some students will already know who they wish to work with and will have already made arrangements with an advisor; others will need to spend part of the first term in discussions with potential advisors.

In any case, there will be an initial period of work before the student and advisor decide to work together towards a thesis. Typically, this is between 6-12 months. At the start, the advisor must make clear to the student what the expectations are for the initial work, and how it balances with the student's other requirements.

The student and advisor should also discuss how often they shall meet to discuss progress and/or concerns, preferred means of communicating, and if the advisor expects the student to be at work or available at specific times, e.g. for group meetings. The advisor should ensure the student has adequate daily guidance either from the advisor or another group member.

After the initial period, should an advisor decide they do not wish to continue working with the student after an initial period, the advisor should help and council the student in finding a new advisor. If the advising relation is discontinued after there is an understanding that they are working towards a thesis, the advisor responsibility is further outlined in <http://web.mit.edu/physics/policies/dept/Memo34.pdf>.

After a successful review of the work done during the initial period, if the student and advisor decide to continue working together, the advisor should let the student know whether the student will need to TA or be supported by a fellowship or RA.

The student and advisor should decide if the student is eligible and thus should apply for outside fellowships for support

The initial research project may or may not lead to a thesis which should be discussed in clear terms before proceeding with any work.

Once a student begins work with an advisor and to completing the oral exam, the advisor should be alert to the student's progress through the subject requirements for their area. If there is a problem balancing between academic requirements and research progress that cannot be resolved with the student, the academic advisor and division head should be engaged.

After completing the oral exam, the advisor should discuss with the student the plans for completing a thesis. While a detailed timeline is usually not necessary, there should be some written clarity about near term research goals, how long completing a thesis will take and a rough idea of the scope of the thesis. Once the Department assigns a thesis committee, the student is responsible for arranging the first meeting, but the advisor should make sure the meeting happens within a few months of its formation and roughly annually after that.

The advisor should also ensure the student communicates an annual status report (to be requested of all students and advisors each fall by the Academic Programs Office) to the Department. Thesis research grades are to be reported to the Department by the advisor. As the time for a defense approaches, the advisor should work with the student to ensure the draft thesis makes it to the committee in time for them to read it before the defense date; two weeks is recommended as sufficient time for review. The advisor should also ensure everyone on the committee is aware of what "finished" means for a thesis.

The advisor should query the student periodically about things outside the immediacy of the research - their career plans, overall thesis progress, and vacation plans. Since the advisor gives the student a grade each term, this provides a good opportunity to give the student feedback on their work and progress.

For students

When a student first starts to work with an advisor, they should discuss how often they will meet and how they will communicate with each other otherwise, specifically when faculty or group members travel. They should also discuss the timeline for deciding whether or not to continue to work together – first year students with a one year fellowship will need to know if they need to find a new advisor or not by early to mid Spring of their first year.

After the initial work period, a student may decide not to continue working with the advisor. If possibly the student should give enough notice to finish near term projects and accept assistance of the advisor to find a new advisor.

If the student wishes to continue working with advisor, they should ask questions about how the initial work would contribute towards a thesis, or if another project/line of research is more suitable for it.

Prior to the oral exam, a graduate student carrying out research with an advisor should have a clear focus on completing the exam and course requirements as well as make a start on the thesis research. The student needs to keep the advisor aware of the balance between completing courses and exams and conducting research. The student should communicate to the advisor their expected timeline for completing courses and exams.

Each student also has an academic advisor who can help ensure that everyone's expectations about completing course and exam requirements are reasonable. It is very much to the student's advantage that required courses be completed within the first two to three years in the program, and not put off until the end of the PhD period.

A student's focus shifts fully to research after the oral exam. Immediately following the oral exam, the student and advisor should meet and discuss the trajectory toward completing a thesis. The thesis may be a continuation of work already in progress, or a new project, or a combination of both. Other faculty at MIT or from elsewhere may be involved in the thesis work. The student must take responsibility for forming the thesis committee with support from the Academic Programs Office as soon as possible after the oral exam. The student should then arrange a thesis committee meeting to discuss the research plan. The thesis committee meets annually to ensure everyone understands how the student is progressing. The student should send a short report to the Department after the meeting. The student should schedule a final thesis defense as the thesis nears completion. During this time, the student should update the committee on progress in order that everyone understands what "finished" means for the thesis.

Throughout the student's time working with an advisor, the student and advisor should meet at least annually to discuss the advisor's expectations for progress, the student's career, and vacations plans\*.

If a disagreement arises between the student and advisor that they cannot resolve, they should engage the Division Head, Associate Head, or Department Head for help.

\* MIT Policies and Procedures Section 8.3.1 says graduate students receive two weeks paid vacation each year.