

Recruiting and Mentoring Great Graduate Students

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- My experience
- Take home message: There is no “one size fits all”
- Some ideas for you to try on (0., 1., 2., 3.)

0. Recruiting

- Be someone that great students choose to work with
- Advertise, email applicants
- What indicators are important to you (or this project)?
 - High course marks (theoretical research)
 - Demonstrated practical skills, lower course marks (practical research)
 - Initiative, creativity
 - Organization, time management
 - Extracurricular involvement
 - English speaking, writing
 - Passion for your research topic, learning
 - Special qualification for your research topic
 - Personality (curious, asks good questions, hard worker, team skills)
 - Work habits (early vs. last minute, meticulous vs. jumps right in)
- Think about the mix of skills in your group (including you!)

1. Supervisor-student relationships

- “What’s your thing?” Larry Kostiuik
 - Thermodynamics? Theory? Experiment? Entrepreneurship?
 - Large group – organizing, managing, hierarchy, synergy of topics
 - vs Small group – be directly involved in high quality research
 - The one thing that most enabled my Nobel Prize was *“keeping my research group below 10 people,”* John Polanyi
 - M.I.T. ChemE profs allowed no more than 2 new grad students/year
- The student’s job: Details of daily work, search literature, learn & grow, articulate details to supervisor
 - *“It’s not my PhD. I already have one.”* Murray Gray
- The supervisor’s job: See big picture, apply experience to solve problems and prune research directions, *teach how to:* research, think critically, present, get paper published, write & defend thesis
- Communicate for success
- Relationships are defined by how you handle conflict

2. Invest

- Propose strong projects
- Match funds and project to skills and passion of student
- There are no perfect students, no perfect supervisors
- Shore up weaknesses (teach or do what is missing)
- Build on strengths of student
- Redirect, refocus, solve student problems
- *“I work to keep others working”*, Suzanne Kresta
- To invest:
 - you need the right group size and time management skills
 - you need to be rested and positive

3. Diverse and Fluid Meeting Plan

- Regular one-on-one meetings (biweekly, weekly, daily?)
- Ad hoc one-on-one meetings
 - Supervisor: *“Email when you’re done and we’ll talk.”*
 - Student: *“I’m stuck. Can you help me?”*
- Group meetings (monthly, biweekly, weekly?)
- Small group meetings (a few students with synergistic projects)
- 1-Day or partial day research retreat (once a year or term?)
- Conference for your students and outside participants
- Journal club
- Thesis or paper writing club
- Scheduled lab maintenance or safety check time
- Coffee to speak English, get to know a new student
- Conference paper or candidacy group practice
- Special workshops (*e.g.* bring in a time-management expert)
- Celebrations (lunch, picnic, Christmas party)
- REQUIRED yearly supervisory committee meetings