Recruiting and Mentoring Great Graduate Students

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(New) Faculty Forum, January 22, 2013

• 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 Kostiuk
  • 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