MENTORING & MANAGING STUDENTS

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Nancy Amato

PhD, U. Illinois 1995, MS Berkeley 1989
Texas A&M faculty 1995-present
  • asst 1995, assoc 2000, full 2004
  • Grad Advisor, Interim Dept Head, Ombuds
  • Group: 4 postdocs, 15 PhD, 4 MS, 4 ugrads, 2 high school
  • Graduated 17 PhDs (7 profs, 7 research labs, 2 postdocs, 1 startup)

Research – Applied Algorithms
  – Motion Planning, robotics, computational biology, computational geometry, animation
  – Parallel & distributed computing, parallel algorithms, performance modeling & prediction

Non-Work Stuff
  • Husband Lawrence (also CSE Prof at Texas A&M) and several dogs (sequentially)
  • For fun: travel, gardening, reading, eating – last summer finally made my bucket trip to Peru & Machu Picchu!
Recruiting, Mentoring & Promoting Students

- **Recruiting good students**
  - make offers to top applicants (TA from dept, RA, share with dept)
  - Offer grad level reading courses (as overload if necessary)
  - undergrad (summer) research programs
  - Have initial trial period (on both sides) and see them “in action” first

- **Mentoring your students**
  - Make sure expectations are clear, require regular meetings/reports, and spend time early on to get going (hard to undo bad habits)
  - Use internships & short visits help them find/refine research problems and build a network as grad students
  - Practice student advising - ugrads & junior grad students
  - TA as a graduate student – even if takes time from research

- **Promoting your students (current & grads!)**
  - Nominate for awards & advertise successes of students & alumni
  - Send senior students on talk tours to give them practice and increase visibility (and external letters) for job search
  - Suggest them for Program Committees, NSF review panels, reviews — this increases their visibility & softens your Nos….
Three S’s of Mentoring & Management

• **Style**
  – You need to understand what works for you and then work to develop practices that fit you and your institution
  – This will change over time as the time as you collect more activities and the size and structure of your group changes

• **Standards**
  – Make expectations clear from the outset & remind them periodically
    • I have an “expectations” document posted in group intranet that covers publication goals, seminar attendance, group service, group mentoring

• **Structure**
  – Group structure
    • Group & subgroup meetings
    • office hours for my students only
    • mentoring hierarchy: Postdocs, sr. grad, jr. grad, ugrads (K-12)
  – Set regular goals and milestones & review regularly
    • Research goals should be both short (weeks/months) and long term (semesters/years)
    • Weekly reports by email (started during sabbatical and kept)
    • Discuss career goals with each student & review each semester
Lise Getoor

PhD, Stanford 2001, MS UC Berkeley 1989
Industry experience: NASA, MSR, Aion
University of Maryland, College Park faculty 2001-2013
University of California, Santa Cruz 2013-present
  – Director, D^3 Center of Excellence for Data Science Research
  – Group: 1 postdoc, 7 PhD, 2 MS
  – Graduated 13 PhDs, 5 postdocs (4 profs, 9 research labs, 3 postdocs, 2 industry)

Research
  – Machine Learning & AI: statistical/probabilistic modeling and logic/structure/graphs, causal modeling
  – Data management: probabilistic databases, data integration, entity resolution
  – Visual Analytics: active learning and info vis for graph analytic tasks
  – Application areas: social network analysis, natural language processing, computer vision, computational biology, computational social science
Recruiting, Mentoring & Promoting Students

• Recruiting
  – Strategies vary depending on institution (student quality, when advisor/student commitment is made, etc.). Talk to your colleagues.
  – Know how to read files
  – Make personal contact with students before committing, and in order to have highest recruiting success
  – Establish pipeline (by school, country, research area)
  – Your students are often best recruiters for your group!

• Research and Mentoring
  – Selecting research focus and problems
    • Must match my interests and fit my research agenda
    • Varies by student aptitude and experience how much they set the direction
  – Every student is different, you have to figure out what works for each, be adaptable
  – Have high expectations and high standards

• Promoting
  – Discuss career goals with your students early on and regularly.
  – Their goals with evolve. Try to plan a path for them that will be flexible
  – Encourage them to get to know students in other research groups
Three S’s of Mentoring & Management

• **Style**
  - Know your personal style
  - Collaborative
  - Prefer small group interactions

• **Standards**
  - Student/Advisor expectations document
  - Weekly Report
  - Manage quality of papers, presentations, and internships

• **Structure**
  - Fluid, collaborations in varying pairs, within group and outside group
  - Postdocs, senior students, junior students
YOUR TURN
Three S’s of Management & Mentoring

• Take 5 minutes and write down your three S’s of Management & Mentoring:
  – What is your Style?
  – What are your Standards?
  – What is your Structure?
Three S’s of Management & Mentoring

• Now, pair up and take 6 minutes (3 minutes each) and explain your three S’s of Management & Mentoring to your partner

  – What is your Style?
  
  – What are your Standards?
  
  – What is your Structure?
SOME TIPS AND Q&A
Nancy’s Tips & Lessons Learned

• Students are not interchangeable…….
  – A free student is not always a good thing
  – A bad student is worse than no student – cut losses early
  – Advisorless students are often advisorless for a reason
  – Don’t take on too many MS students

• Undergraduates can be a good source of grad students
  – Most institutions have at least some excellent ugrads
  – Some will go onto grad school elsewhere, but some will want to stay – both are good for you

• Don’t persist if things don’t work
  – Don’t be afraid to let students go; encourage/help them find another advisor – it will be best for you, them & your group

• Remember: Students are the reason there are universities and there is nothing more rewarding than watching the successes of your students
Lise’s Tips

• Don’t take on too many students
  – Especially early on!
• Give yourself a break
  – You *will* make mistakes, view them as learning experiences
• Healthy mentoring relationships have clear boundaries
  – Don’t get involved in your student’s personal problems
• Work to create a healthy group, sum is greater than the parts
• Value your students
  – Working with students is one of the best parts about being a faculty member, make it clear to your students that you value them!
Q&A Time
Potential Questions: Advising Challenges

- Balancing training students & publishing for tenure
- Dealing with poor writing without completely rewriting the paper yourself
- Slow progress
- Focus on engineering and missing the research
- Advising students with low confidence
- Dealing with sloppy empirical work
- When & how to cut a student loose
- …
THANKS!