



Teaching and Mentoring Students

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Awesome responsibility and privilege

- **Important part of a professor's life**
 - Teaching undergraduate courses
 - Teaching graduate courses
 - Mentoring undergraduates and graduate students
- **Both rewards and challenges** - just like research
 - Rewards: impact on another person's life
 - Challenges:
 - Balancing teaching and research
- **Goal is to be excellent in both**



Teaching undergrad courses

- Upper level - usually in own research area
- Lower level (1st and 2nd yr) - could be large
 - Could be lab classes
- Assignment - don't be shy (or impossible)
 - Ask for upper level courses in research area initially
 - Try to teach the same course multiple times but not enough to get stale



Training to be a good teacher

- Few grad students trained as teachers
- University has opportunities to learn to teach - **take advantage**
 - Workshops
 - Video
 - Colleagues
 - Evaluations
 - Give one of your own half way through course
 - University typically has an evaluation at end
 - Take comments seriously and try to improve your teaching and course



Tips

- Be prepared/organized - takes time but worth it
- Provide a syllabus and stick/update it
- Be available during office hours
- Don't brush questions off or be rude
- Try to use a text book
- Spell out policies the first day and document
 - Cheating, late homework, missing tests, incomplete, extensions, etc
- Use material from previous instantiations of course
- Be realistic - not graduate students; not you



Challenges

- **Balancing research and teaching**
 - Cannot get tenure based on teaching
 - But bad teaching can hurt you and students
 - Best researchers are good-great teachers
- **Managing Teaching Assistants (TA)**
 - Should ask for TA support
 - Use it wisely - hesitate to have them grade tests unless large class
- **Problem students**
 - Don't show up in class
 - Argue grades - my policy "regrade entire test"
 - Grading - fair, honest but students are people



Teaching Graduate Courses

- Teach in area of expertise
- Way to attract graduate students and know how good they are
- Courses deeper and faster paced
- **MUST** be prepared
- Reputation depends to some extent on how well you teach graduate classes
- You will learn more than when you took courses



Mentoring Ph.D. students

- Most important component for successful research
- No training - Mentor like our advisors did (same as for parents)
 - Read resources
 - Think about how you would have liked to be mentored



Mentoring graduate students

- **Research advisor**
 - Basically interested in student only for research produced
- **Mentor - research adviser plus professional development (maybe even personal)**
 - **Communication skills**
 - Talks and papers
 - **Networking**
 - **Career choices**
 - **Development into a professional - dress, behavior, speech, etc - but they are individuals**



Tips

- Respond in a timely and reasonable way
- Meet regularly - individually and group
- Do not use excuse - **too busy** - priority
- Act as advocate
 - Awards, opportunities
- High expectations but not unrealistic
- They are not your employees
- Help build confidence
 - Encourage women and minorities



Challenges

- **Apprentice:** show and then let students do own work
 - Research, writing, thinking
- Conflict between junior faculty and students
 - Who gives talks, who get names first
- Grad students not perfect - your job to train them
 - Motivation and drive
 - Creativity
 - Work ethics
 - Helping them learn to write and speak
 - Sometimes it doesn't work - give them warning in writing if not funding them
- Help students to develop independence



Mentoring undergraduates

- Fun to do - enthusiastic about research
- Can get publications - but it takes a well thought out project - mini proposal
- Good to work in group - 2 to 4 students
- Include them in your research meetings and group
- Work with graduate students but don't exploit graduate student



Mentoring M.S. students

- Can get publications
- But, it takes a well thought out and developed project
- Sometimes work with Ph.D. students
- Try to encourage best students to go on for Ph.D.



Don't

- **Get the reputation as a bad adviser**
- **Think the students have no life but research and work**
- **Exploit students - have them do all kinds of things not related to research**
- **Expect what you did**
 - **Cannot remember what you were like as a beginning graduate student**
- **Do remember they are people with their own personalities and life**



Rewards of mentoring grad students

- Sense of accomplishment
- Can learn great deal from students -
 - Especially if want to move into new field
- Lifelong friends
- Best aspect about being a faculty member
- Proud of my student's accomplishments - Harrold
- Enjoy - it is worth it.



Resources

- **Adviser, Teacher, Role Model, Friend - On being a mentor to students in S & E"**, NAS, NAE, IOM, National Academy Press, 1997
 - <http://www.nap.edu/readingroom/mentor>
- **CRA-W Career Mentoring Workshops Booklet**
 - **Getting tenure, Building research career, Finding funding, Time management**
 - <http://www.cra.org/craw>
- **Research Student and Supervisor: An Approach to Good Supervisory Practice**
 - **Council of Graduate Schools, Washington, D.C.**
 - <http://www.cgsnet.org/PublicationsPolicyRes>