Background

- Presenter: Katharine Brumbaugh
  - PhD student, Aerospace Engineering, University of Texas at Austin
  - M.S. Aerospace, May 2012, UT-Austin
  - B.S. Aerospace, May 2010, Purdue University

At Purdue:
- Purdue Student Engineering Foundation
- Society of Women Engineers
- Undergraduate Teaching Assistant

At UT-Austin:
- SWE Grad Committee
- Satellite Design Lab
- Teaching Assistant
- Graduate Research Assistant
Purpose

Share lessons from:
- TAing as Undergrad and Grad
- Managing technical team of mostly undergrads
- Managing/Leading/Working with organizations of undergrads
- Non-lab research projects with undergrads

Format

- Situation-based group discussion
- Lessons learned after discussion
IN A LAB/TEAM SETTING...
What does it mean to be a leader?

How do you manage a team of undergrads?

How do you keep your team motivated?

Should you reward good work?
  - How?
  - What are the performance measures?

What are the differences between undergrad and graduate student life?
  - Psychology
  - Time management
  - Experience
**BE A LEADER...**

- **Lead by example -**
  - Don’t assign a task that you aren’t willing to do yourself
  - Don’t expect people to drop everything (school work included) to get something done for you and your research / paper / proposal
  - When you do assign a task, complete your portion by the deadline you impose
  - If you don’t know the answer, admit that you don’t know. Give suggestions on how they should proceed, people they could talk to or places where they could research the topic.

- **Be a physical presence by being available -** either in your office, the lab space or walking through the halls.
  - Team members like to be able to ask questions.
  - I also think it helps boost morale when they see you physically working like they’re expected to do.
Recognize those who are accomplishing good work and are dedicated to the team. Whether this means giving them a small token of appreciation (i.e. a candy bar, baked goods, etc) or a pat on the back is dependent on the person - but acknowledge them publicly.

- This serves as motivation for the rest of the team
- Allows the person to “show off” to the rest of the team

Organize small get-togethers and/or celebrations for team-oriented jobs well done. i.e. after a design review, when a huge event happens, etc.

Find the motivation method which works for your team

- Satellite Design Lab: is a social environment with baked goods as treats/rewards
Understand the psychology and personality of each team member - knowing how to talk to them and get a point across will help you accomplish your own goals for the team.

- Treat everyone equally - don’t get on a high horse just because you’re “older” and “more experienced”...in some cases, you’re not!
- Know and empathize when students are going through rough times. Act as a friend and a mentor. (i.e. depression, family issues, etc) Sometimes just showing that you care is enough to help them through those tough times.

Be willing to listen to them gripe about their classes, life in general - not necessarily saying anything about your life - just listen.
MANAGING TIME...

- Manage meetings effectively and responsibly. Respect everyone’s time by running meetings smoothly and ending on time.
  - Undergrads are super busy, especially if they’re working in your lab - that shows their willingness to be involved and the students tend to be over-involved (coming from experience).
  - Have an agenda or main topic of discussion
  - Have all documents/links previously brought up on the computer to not waste time in transition

- Understand the schedule/way of life for an undergrad
  - In-person meetings tend to be more effective than over email
  - They won’t always be able to be in the lab - undergrads (especially first or second years) tend to have more classes and work to do
  - They typically don’t quite understand how to balance classwork and extracurriculars/life
  - Have them focus on one key task per week. If they finish that, then they can move on to the next key task. But too many tasks at once will yield no results.
You cannot immediately command respect. This comes by building relationships and establishing credibility with your team members.

Don’t micromanage - show your respect and trust of team members by trusting their ability to accomplish the task. At the same time, have a contingency plan for if they do not.

Always be training others to take over for you should you need to leave for personal, business or other reasons. The greatest compliment of your leadership skills is when you can leave the team and it still operates as if you were there.
WHEN A TA...
QUESTIONS/SCENARIO:

- How quickly should you return papers?
- What if a student asks you a question you don’t know the answer to?
- What if you didn’t do your undergrad at the university?
Return graded/commented papers as quickly as you are able (preferably within a week)

Don’t act like you know everything. If you don’t know an answer to their question, admit as much and say you’ll look it up or ask a professor.

Be familiar with their curriculum and what classes they’ve taken so you know how to explain things to them.

If you’re knowledgeable about the material (say, a senior design class), explain to them your background and why you are knowledgeable. Offer feedback based in your experience with the topic.

- If you try to give them feedback without explaining your background, more than likely they’ll just blow you off.
- If you explain your background, now you have credibility and clout with them. They’ll respect your advice much more.
WORKING WITH AN UNDERGRAD AS AN URA
How does this situation differ from being a lab/program manager or a TA?

What kind of experience do they usually have?

How can you teach them the material in a non-TA method?

How often should you meet with them?
- Ask them what their experience is, class and industry.
- Frequently ask them whether or not they understand the material, or whether they need it to be repeated / explained differently.
- Be aware that their schedule will typically be busier than yours. Plan accordingly.
- Make time to meet with them once a week, or however often is necessary. If appropriate, get a professor to sit in on those meetings for additional feedback.
- Share your background research / class material / initial steps with them, so they have a baseline of where to start.
Thursday Sessions
- Graduate School Community Meeting and Networking, 10am, 350F
- Tips for Mentoring and Teaching Undergraduates, 1:30pm, 342F
- Career Options for Engineering PhDs, 1:30pm, 362AB
- Navigating Academia and Motherhood, 2:45pm, 342F
- Ethical Dilemmas in Research and Graduate School, 4:00pm, 342F

Friday Sessions
- Graduate Student Involvement in SWE Sections, 10am, 361DE
- The Postdoc: Why and How, 10am, 352D
- Graduate Research Rapid Fire - Energy, Sustainability, Resource Mgmt, 1:30pm, 361F
- Applying for Graduate School, 1:30pm, 361C

Friday Sessions (cont)
- Strategies for Effective Grant Writing, 2:45pm, 342C
- Global Opportunities for Grads and Postdocs, 2:45pm, 361AB

Saturday Sessions
- Funding your Graduate Education, 10am, 361AB
- Entering Industry with a Graduate Degree, 10am, 351DE
- Adjunct Faculty Positions: a Second Job, an Alternate Career Path, or a Transition, 1:30pm, 361AB
- Graduate Research Rapid Fire - Bio, Eng Tech, Education, 1:30pm, 342DE
- Emerging Career Pathways for PhDs, 2:45pm, 342AB

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