Research Strategies

Kelly A. Shaw
Research Related Goals

• Stay informed about advances in your research area
• Stay published in your field
• Stay connected to members in your community
• Stay excited about doing research
Specific Strategy 1: Read and Reflect

• Read a paper/chapter every week
• Reflect and write on that paper with you in mind
  • Do they use a new technique that I can use?
  • Did they present their work in a way I can adopt?
  • Did they expose a particular insight or result that supports my work?
• Reflect on your writings every few weeks
Specific Strategy 2: Get Out in the World

- Attend one major conference a year
- Reconnect with existing friends
- Use weekly reading to meet new people
- Talk about your work
- Serve on a PC or grant review panel
- Ask your friends to suggest you
- Go in person
- Have students present research posters
- Create students people want
Specific Strategy 3: Collaborate with at Least 1 Peer*

- Someone who does research in a related area
- Someone whose primary research is outside of your area but who is *physically local*

*Students are not your peers*
Creating a pro-research environment
Schedule Time Daily for Research

• Every week
  • Create a list of small research tasks

• Every weekday
  • Schedule 30-60 minutes for research
My Productivity

- 8am: Scholarship
- noon: Class prep
- 5pm: Office hours, email, grading, service
- 7pm: Email & grading
Create a Support System

• Collaborators are great motivators!
• Create research accountability group
  • Track research progress
  • Provide encouragement
• Create a system of people for feedback
  • Less intimidating people get work in early stages
  • Ask more established folks for feedback on work closer to being finished
Reflect

• What time of day are you most productive on research?

• Who might you include in a support group?
Managing Research Projects
Determining Your Research Scope

• What can you realistically accomplish?
  • How expansive can your project be?
  • How much prior knowledge will be needed to accomplish this research?
  • How many projects can you have going on at once?

• What will be valued by your university?
  • Individual vs. collaborative work
  • Student research
  • Primary vs. interdisciplinary vs. pedagogical research
Quantifying Your Available Human Capital

• How will you spend your time?
  • Doing actual research
  • Managing / interacting with participants
  • Academic year vs. summer
• How much time and effort will your collaborators give?
  • Other faculty may have limited time
  • Industry researchers give and demand lots of effort
  • Students may require training
Create a Mix of Projects

• Keep one solo project
• Create a collaboration with a researcher in your field
• Create an interdisciplinary project with someone at your university or someone locally
How Do You Start Peer Collaborations?

• How do you come up with an idea to work on?
  • Reflection on other people’s research gives you springboard

• How do you make it happen?
  • Start with specific problem or paper idea
  • Reach out to people* at conferences

*Work with people you like
Reflect

If you think of recent papers you’ve read, can you think of approaches to extend them or apply the technique to another area?
How Do You Make Collaboration Succeed?

• Go to location of other researcher to get things started
• Have a student work on the project
  • Co-advise their graduate student
  • Have your student do a summer internship at their location
• Communicate on regular schedule
• Set concrete goals
Working With Students
Recruiting Students: Getting the Word Out

- Talk about research at admit day sessions and research colloquia
- Post research on door and web page
- Mention research students in class
- Ask colleagues teaching introductory classes for names of good students and approach those students
Be Very Selective

- Trial run to evaluate
  - Personality
  - Initiative and passion
  - Interest
  - Diligence
- Ways to get started
  - Credit during semester
  - Paid research during semester
  - Summer research
- At end, ask the good students to continue
Tips for Working With Students

• Be positive!
• Break research projects down into small, semester length tasks
  • Plan for each task to be done by a different student
• Create organization
  • Create contract specifying expectations
  • Communicate and meet on set schedule
Tips for Working With Students

• Realize you will need to
  • Develop general skills
  • Develop research specific skills
  • Teach them about the research process
  • Continually remind them of the end goal
Funding your research
Some Practical Suggestions

• Find out about university funding
  • Travel and research grants
• Ask your colleagues how they got funding and how much
• Go to your grants office
• Call program officers and ask questions
• Ask people for successful proposals
• Ask successful researchers to comment on a draft of your proposal
Funding Opportunities

- NSF
  - Career
  - REU
  - RUI
  - ROA
- DARPA
- DOE
- HHMI
- NIH

- Sloan Foundation
- CRA-W
  - DREU and CREU
- Microsoft New Faculty Fellowship
- Packard Foundation
- Google Research Awards