

# Selecting & Supervising Students

led by  
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## A Carnegie Postdoctoral Development Workshop

GL Director Mike Walter and DTM Staff Member Diana Roman shared their past experiences as professors in a university (the University of Bristol and University of South Florida, respectively) on the subject of electing and supervising students.

In Europe, you offer projects; in the U.S., recruitment of students takes on a different form.

- Important to spread the word: create a buzz
- Websites *are* crucial as they are first port of entrance
  - make sure your website is easy to navigate and attractive
  - make it internationally accessible
- Social media is *not* a great way to advertise or recruit students
- Campus visits/open days: promote the program in addition to yourself
- Make sure the Department is vibrant, fun, etc. Promote the whole package
- Have personal contact by phone or email with the student(s); coordinate with the university administration. From student's perspective: wow, this professor is interested in me!
- Top applicants will have multiple offers, thus need exciting projects and competitive financing
  - at University of Bristol, UK, the top 5 would end up selecting Oxford or Cambridge. Difficult to compete against those universities, so you must up your game
- Focus and develop a reputation as a good mentor.
  - it takes time
  - do your students say good things about your mentoring
  - do your students get good jobs?

In the U.S., students come in as TAs, with a 9-month salary. As a new professor, you probably do not have active grants, so make sure you ask for summer funding for your students as part of your start-up when you are recruited.

Q: How can you compete with the big-name schools? What is the best strategy?

- In the UK, projects. Make the offer to those students you know you can recruit, not the top 2-3.
- Convince the student that this is the right place for them. That they will get a job and move on in their profession. That you have looked ahead.

- There is also an element of luck. In Diana's case, she had an NSF grant that involved fieldwork that she could dangle.
- One strategy that Steve Shirey (Staff Scientist, DTM) used when he was looking for a graduate program was attending and looking at the AGU abstracts, where was there an active program?
- Lara Wagner (Staff Scientist, DTM, former professor at UNC Chapel Hill): recruitment varies from university to university. Who has the happiest graduate students?
- Everyone goes to the website first. Get undergrads to do research, promote them on your website.
- Try matchmaking top candidates to different departments, the favor might be returned.

Q: How do you attract underrepresented students/groups?

- Universities are aware of this
- Mechanism is in place at the university level
- Smaller schools or state universities have larger representation
- You can tap the undergraduate students you already have
- Use your website to advertise

Q: Has anyone used ads in AGU or listserves "I am looking for a grad student"?

Walter: Yes, print advertising isn't effective, but list serves are.

### **Selecting:**

- Regarding student selection, you will make mistakes.
- Best student on paper may not necessarily be the best student for you.
- Interviews and letters are key.
- Have an informal chat: phone call, skype
- Read between the lines within references, look at the red flags

Beware "institutionalized" students, try to understand the student's motivation. You want a student who has chosen to do an advanced degree with you because they are dedicated and have thought about what they want to do - not one who just moves up to the next degree because that is what is expected. "I want to get a PhD" is not a good motivation.

Know what you are looking for in a student (skilled in the lab, special expertise). Not just to grow a group. You are responsible for these individuals and their futures.

Question posed to Mike Walter when he was a graduate looking for a PhD program: the `hands on - hands dirty question': "Can you tear a car apart"?

Advice: Recommendation letters are important, when you write letters of recommendation, be honest.

Roman: Follow up and talk to the letter-writer on the side. They might give up more insight into the student.

Look for evidence of the student's ability to what it takes. "What did you work on as a student? Did you take it to fruition? What project did you do as an undergraduate? Did you complete the project? Did you have an internships"?

Roman: What I observed was those students who chose to take additional coursework were successful.

Easier to take an incoming student with solid math rather than one who had an internship. If the student has been proactive, that is a good sign. A student who went above and beyond is a good indication of how they will do in grad school.

Walter: Do they have the motivation to go through 4-6 years of schooling?

Q: Some departments do not give interviews.

Roman: In the summer/fall, you will get a call. "I am interested in grad school, I saw your website." If you don't have an open day at your university, bring the student in or skype with the student. Correspond with your applicants even before they apply.

Wagner: The interview is a weed-out tool. AGU is really well timed. Scout for people in December. if you get someone cold, skype and telephone them as a minimum.

Q: Do you remember specific questions to draw out from people who don't have much experience with research?

A: That is a hard one. Ask about some project they have been involved in. Ask them to "draw me a figure." Start the conversation. You want them to reveal how much independence they had. How deeply they understood the material or had ownership of the project.

Roman: Institutionalized vs excited student. What topics interested you? What do you want to know about?

Q: Is there different criteria between Masters students vs PhD students?

Roman: I preferred students with Masters. Roman herself went in to do a Masters and stayed for her PhD. I looked for someone who had perhaps worked and then made the decision to get a PhD.

Wagner: A Ph.D. can be up to \$1/2M commitment: tuition, overhead, and huge chunk of your time. Don't count on a break point to shew them out at some point if they can't hack it. Masters

is a 2-year commitment with smaller time commitment on your part. Offer a Master's degree and see how they do and then offer them to go on to the PhD level.

Q: When you make an offer to a PhD student, they may end up different from your expectation. What did you miss during the selection?

Walter: You will make mistakes. It is hard to project how the person changes in time. Students are a big responsibility. You are important for their future careers. You have to do your part in that partnership:

- Let the students know this is a partnership and there are ground rules.
- Start each new grad with a "training project" as a proving ground.
- Allow them independence, but keep your eye on the ball.
- You are training for an independent scientist.
- It is critical you keep an eye on your students, at least once a week check up on their progress.
- Pay attention and recognize which students need more of your attention.
- Be aware of the style of *each* of our students.
- Have a clear route to the end game. Ensure the project is well defined.
- Don't pander to students; don't do the work for them. You have your own grants and work to get done. The temptation is there to go in and do it for your student.
- Treat the students as colleagues, not as slaves.

Q: What about the stubborn student? Strategy??

Roman: Very common. Give the student a project that you can say, "do it your own way." Give the student something you can let go of and see if they have good instincts or if they are just stubborn.

Q: Walter said we will make mistakes. Is that a typical relationship problem?

Wagner: Not hard to see if someone has the voltage. Motivation can be gauged, but can change. Most challenging are those making transition from knowledge ingesters to producers. did they learn from their previous research project? You gamble when bringing in students.