

# Establishing and Managing a Research Laboratory

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# What is your research agenda?

- Do you have a specific, goal directed line of research?
- Do you have a short-term and long-term vision of what you hope to accomplish in your career?
- Have you established guideposts that will allow you to self-evaluate your progress?

# What Is Your Vision of the Perfect Research Laboratory?

- **Equipment wish-list**

- Critical need

- “Must-have” equipment – typically this equipment needs to be present at your university, not necessarily in your laboratory. Sometimes, must be in you lab.

- Urgent need

- Equipment needed for immediate project goals that will also be used to sustain your research throughout most of your research agenda. This equipment, if shared within your department, should probably only be shared by 3 or fewer faculty since it will likely be high use.

- Strong need

- Equipment needed for your immediate project goals. Preferentially at your university, but accessibility would be sufficient.

- No need

- Equipment that is impressive to have, that you will use for one aim of an immediate project
- Duplications of equipment (within your lab) that are in one of the categories above.

# What Is Your Vision of the Perfect Research Laboratory?

- **Personnel wish-list**

- Post-doctoral fellow

- What is your vision of the benefits of a post-doc?
- What is the reality of the benefits of a post-doc?
- How will having a position with you benefit a fellow's long-term career?

- Graduate students

- Do you have a mentoring plan for your graduate students?
- How is the graduate student curriculum different from the undergraduate curriculum and what impact will this have on your expectations for that student?

- Undergraduate students

- What are your expectations for the undergraduate student
- How will you communicate those expectations?
- What will the undergraduate get out of it – measurable outcomes

- Research technician

- What will the research tech do that your students can't do?
- Do you need a full-time technician?

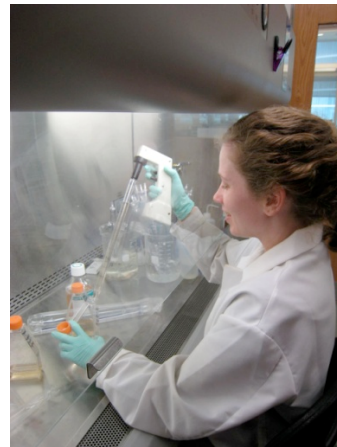
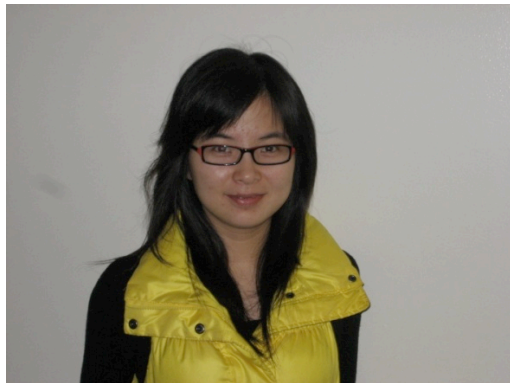
# What Is Your Vision of the Perfect Research Laboratory?

- **Supplies wish-list**

- “Equipment” under a certain \$\$\$\$ amount count as supplies
  - Microcentrifuges
  - Research pipettes
  - The \$\$\$\$ amount varies by university
- Consumable supplies
  - Don’t underestimate the value of consumable supplies “donated” by previous researchers
  - Every grant, every year, mentally include a small \$\$\$ amount to replenish these items.
- Don’t forget “safety” items.
  - First aid kits, chemical spill kits, biohazardous waste boxes, broke glass containers

# Once In the Lab

Understand that students come in all shapes and sizes.



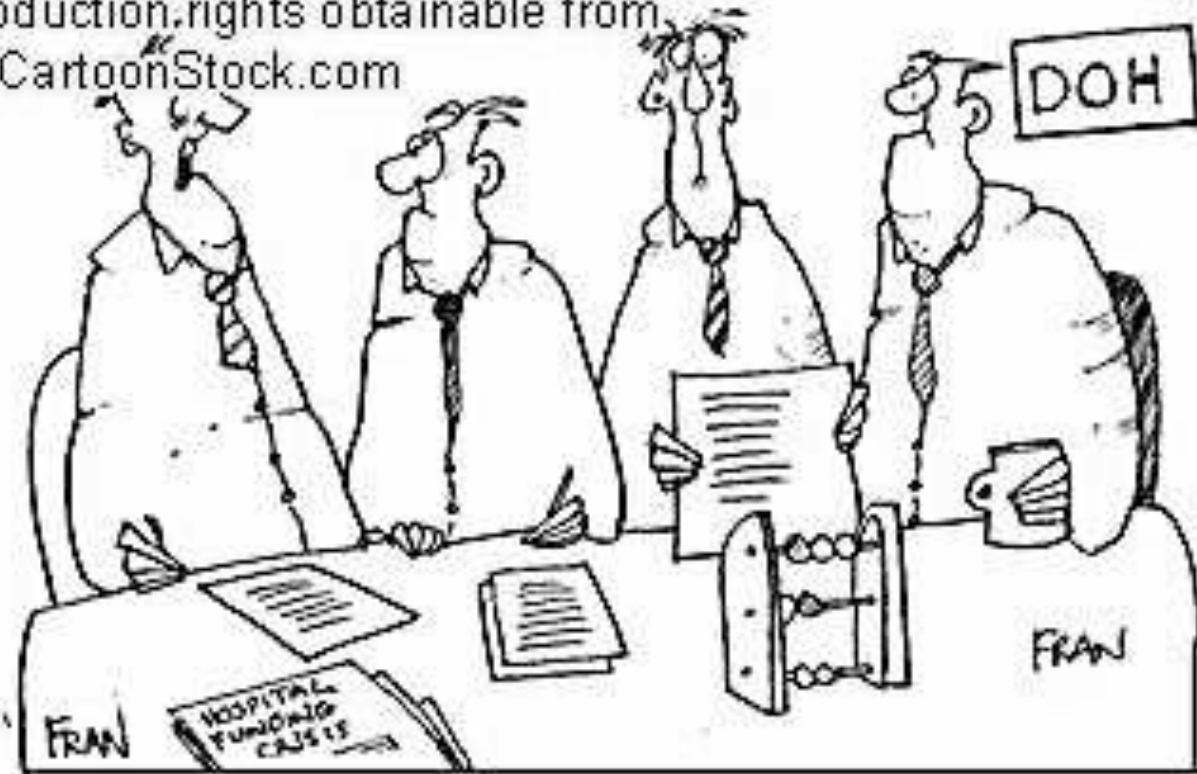
**Make sure that their shapes and sizes**

Department of Biology, CAS, Georgia State University  
**don't clash with yours!**

## Be clear, with yourself and your students, about your expectations.

- Do you expect to see them in the lab every day?
- **What should they do during “down-times?”**
- What should they include in their laboratory notebooks?
- Can they talk to you about personal issues?
- **How much “creativity” can you afford?**
- Will they have independent research projects or will they just tag-along on someone else’s?
- If you were asked to give a reference for them, what behaviors would you focus on?

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WHAT I DON'T UNDERSTAND IS HOW ALL THREE  
OF US MANAGED TO GET THE FIGURES WRONG!

# Functions of Successful Mentors<sup>1</sup>

- Demonstrating a style & methodology of doing research
- Developing an analytical approach to “asking” significant questions/ choosing appropriate approaches to solving them
- **Discussing the ethical basis for scientific research**
- Transmitting, by example, the skills required for effective scientific writing
- Facilitating access to the research community
- Exploring & evaluating the literature of the discipline



Professor McGuire was fast regretting becoming the first man to successfully create a mini black hole in the laboratory.