

# “Orientation”

R Gilman

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- Various topics related to your time in the graduate program
- Not an academic requirement talk
- Not a research ethics talk

# My background

- Grew up in small city in NH
- UG at MIT
- Grad at U Penn
- Postdoc at Argonne National Lab
- Faculty at Rutgers

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- NH diversity then:
  - “WASPs”
  - French-Canadian Americans
  - 20% (?) the rest of us
- UG + G lived and worked with students of diverse national origins, races, sexuality, political beliefs, ...

# The Lesson

- Your best friends and colleagues, your favorite people to work with, may have totally different backgrounds from you.

# Mentoring

I received almost no mentoring throughout my career.

This is not because I did not need it. There were many things I was clueless about, that became obvious later.

We hope to do a better job for you here at Rutgers.

Here in SIP, and also in DELTA-P, for a start.

# A Ph.D. is a research degree

M.S. requires 30 credits, which can be all coursework.

A Ph.D. requires 72 credits,  $\geq 24$  research, with a higher level of research performance.

A lot has been done outside your specialty, and most of us can learn useful things from elsewhere. Try to avoid being too narrow.

# Staying in academic physics ...

Do interesting research.

Become an expert in your area.

Physics is trendy. It is probably more helpful to do something new, to be involved at the start of an area, than to finish one.



# Getting hired as a postdoc

- Faculty often hire postdocs to support a particular technical project, rather than trying to find the “best” person.
  - But some of us think: this is a chance to hire someone who will work with / for us for decades.
- You are the product. What does your customer want?
  - Explain why you want the position, but also how hiring you benefits them.
- Don't take the last plane flight the night before your interview.
- Learn from the mistakes of others.

# Learn to give good talks

This could be the most important skill you develop in graduate school.

Practice regularly. In GSO, in your research group, in annual committee reports, at APS meetings ...

# Learning to give talks\*

- Slides / talk / questions
  - Do not imitate what others do poorly.
  - Adjust the talk for the audience:
    - I only hear about 1 talk per decade that is too simple.
    - Almost no one can follow the algebra.
    - Your experimental details are very exciting to you.
  - Be interested and excited in your subject.
  - Avoid “you know”, “uhhhhh”, sighs, etc.
  - Know what you talk about; arrange your talk to talk about things you know.
  - Don’t read your slides – but do have reminders for everything you want to say.
  - Explain the figures.
  - End seminars a couple minutes early.
- \* This slide is too busy.



# A pretty slide

- Your beautiful slide transitions are distracting.
- Your fonts are too small.
- Your figures are too small, and there are too many on the page.
- Your lovely slide background adds noise and confusion.
- The contrast is poor.
- Your margins are too narrow.
- At least you did not put every word in a different color / font to emphasize everything.
- Did I provide references for these figures? None are my work.
- Some rooms have small screens.
- Green may not project well.



Hard to see postage stamps, limit to 1-2 figures per slide.



# You do belong here

“Imposter syndrome”

<https://www.npr.org/2021/01/22/959656202/5-steps-to-shake-the-feeling-that-youre-an-impostor>

In 1978, as graduate students, Suzanne Imes and Pauline Rose Clance realized they both felt like they weren't good enough to be doing their graduate studies, and many of the female students they were teaching felt the exact same way...

- For most of you, more than ever in the past, you are among a group of really talented people.
- You are perhaps starting to look forward to the future, comparing yourselves to your fellow grad students and faculty, wondering how you can ever be that good.

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- For most of you, more than ever in the past, you are among a group of really talented people.
- You are perhaps starting to look forward to the future, comparing yourselves to your fellow grad students and faculty, wondering how you can ever be that good.
- We admitted you because we are convinced you can succeed in the program.
- A lot of us wondered that too when we were in graduate school.
- The game is fixed.

# Things to avoid

- Insufficient “down” time
- Academic integrity / ethics violations.
  - We do generally expect you to work together on homework and studying, but not to simply copy it
- Being unprofessional / abusive / harassing.
- Being irresponsible – in your classes or as a TA or ...

## Statement 19.1 Guidelines on Ethics

As citizens of the global community of science, physicists share responsibility for its welfare. *The success of the scientific enterprise rests upon two ethical pillars. **The first of them is the obligation to tell the truth, which includes avoiding fabrication, falsification, and plagiarism.** The second is the obligation to treat people well, which prohibits abuse of power, encourages fair and respectful relationships with colleagues, subordinates, and students, and eschews bias, whether implicit or explicit.* Professional integrity in the conception, conduct, and communication of physics activities reflects not only on the reputations of individual physicists and their organizations, but also on the image and credibility of the physics profession in the eyes of scientific colleagues, government, and the public. Physicists must adopt high standards of ethical behavior, and transmit improving practices with enthusiasm to future generations.



Thank you