

# MENTORING RESEARCH

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VirginiaTech  
*Invent the Future*



VirginiaTechCarilion  
Research Institute

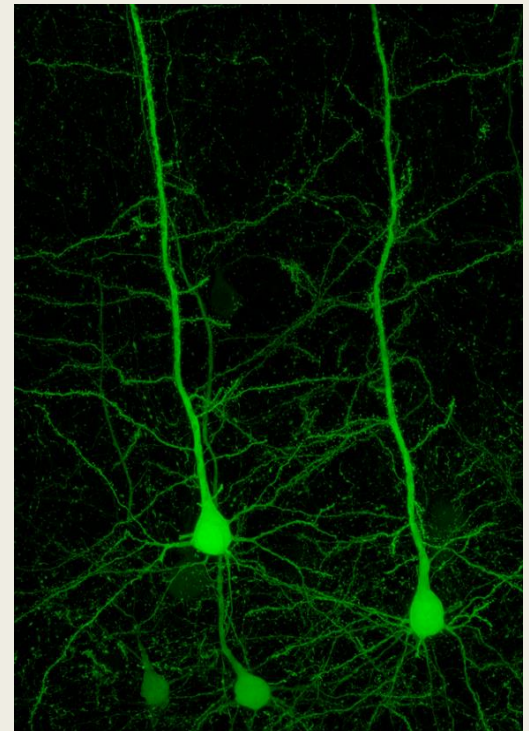


DTNC  
Developmental & Translational  
Neurobiology Center

# Who am I?

## Am why am I qualified to talk about Mentoring Research

- Developmental neurobiologist (trained at USMA, W&M, VCU, Harvard)
- A dozen years running a lab that studies how neural circuits develop and are maintained (VCU, VTCRI)
- Mentored medical, graduate, undergraduate and high school students, as well as technicians and post-doctoral fellows
- I find mentoring a rewarding and fulfilling part of my job



# Objectives

- Define the roles and responsibilities of a research mentor
- Identifying goals and expectations for a mentee
- Identifying challenges and hurdles as a mentor
- Evaluating progress

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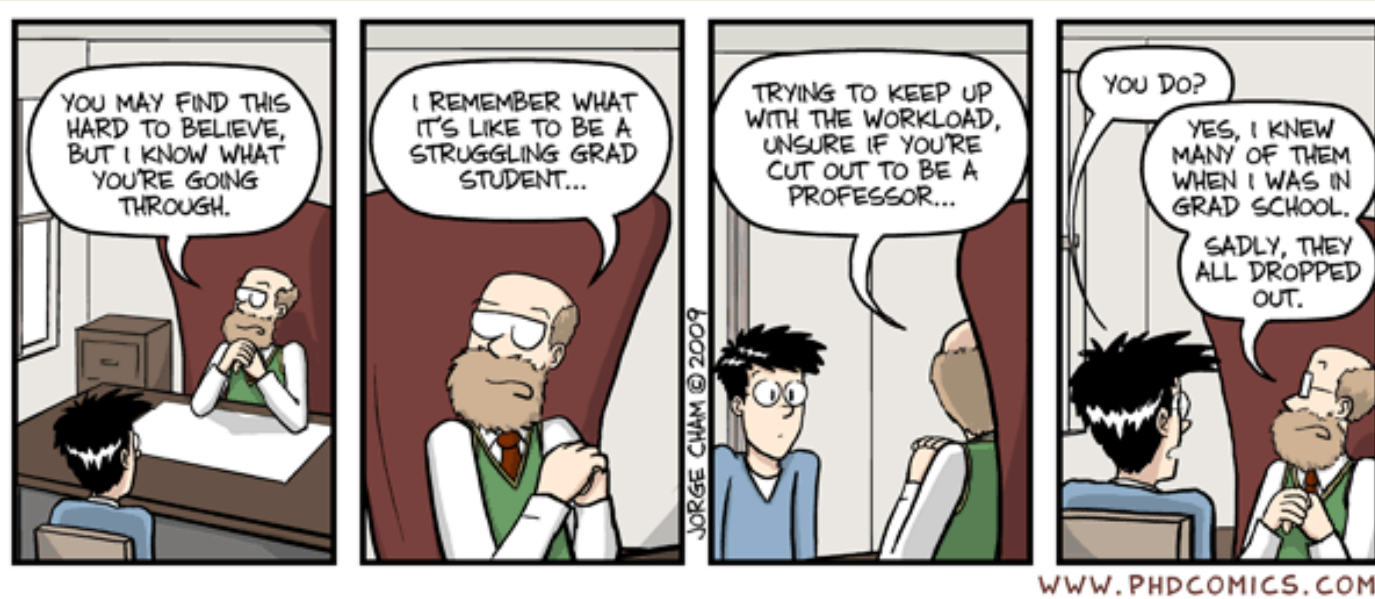
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# What is a research mentor?



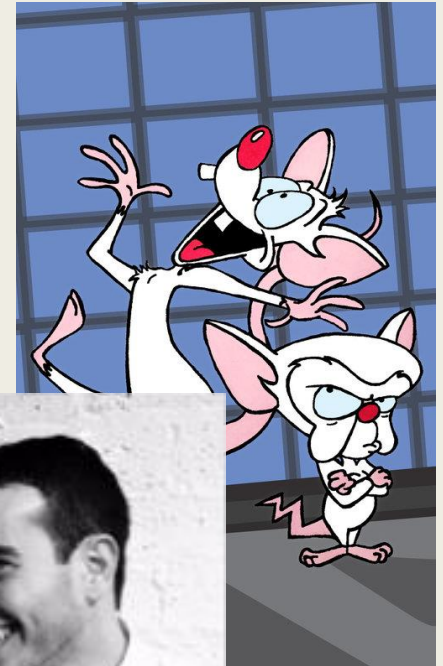
# What is a research mentor?

- **Advisor** – willing to share career (research) experience and knowledge
- **Supporter** – give moral and emotional encouragement
- **Role model**
- **Sponsor** – willing to be a source of information and financial support for research



# What is a *good* mentor?

- There is not a formula for good mentoring since:
  - *Not “one size fits all”*
  - *Depends on environment, project, mentee*
- Good listener
- Good observer
- Good problem solver
- Good motivator
- Good communicator
- *Good recruiter*





# What are my responsibilities as a research mentor?





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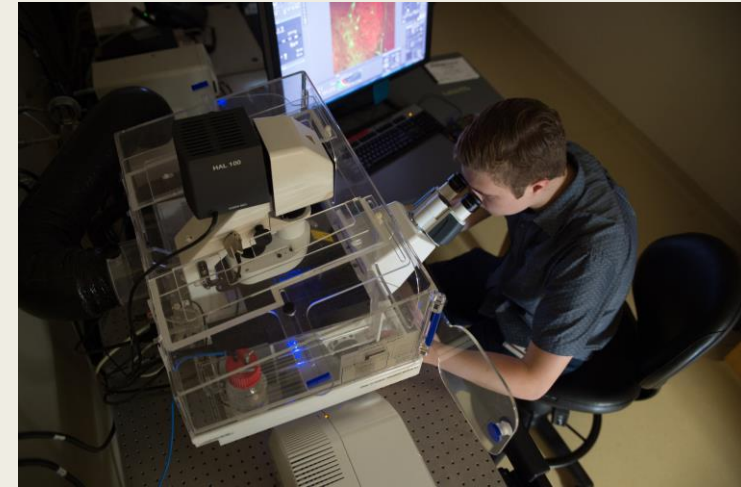
- Create independent, deep thinkers
- Introduce/Reinforce responsible conduct of research and ethics
- Identify clear and achievable goals
- Define activities and expectations
- Commitment to advancing career of mentee
- Guidance (*not micromanaging*) versus freedom
- Provision of resources and guidance
- Provision of a safe research/work environment
- Ensure progress and productivity
- Ensure protocols are in place, understood, and followed
- Recruit “good” mentees

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# Identifying why research?

- Understanding why someone wants to do research helps define appropriate goals and expectations
- High school (undergrad applications)
- Undergrad (professional/grad school or STEM-career)
- Graduate student (postdoc/policy/other)
- Medical student (residency/grad school)
- Postdoc/resident
- Technician
- Clinician/health professional



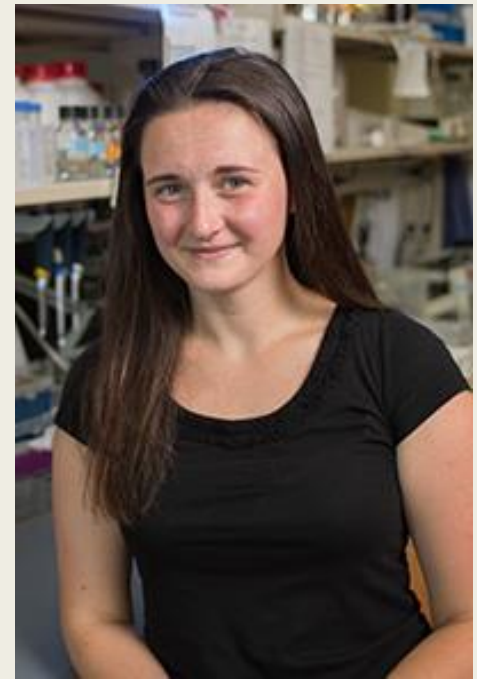
James Cole (W&M)

# What are the deliverables expected from research?

- Novel experience (to explore an unknown)
- Career advancement
- To solve a problem or create new knowledge

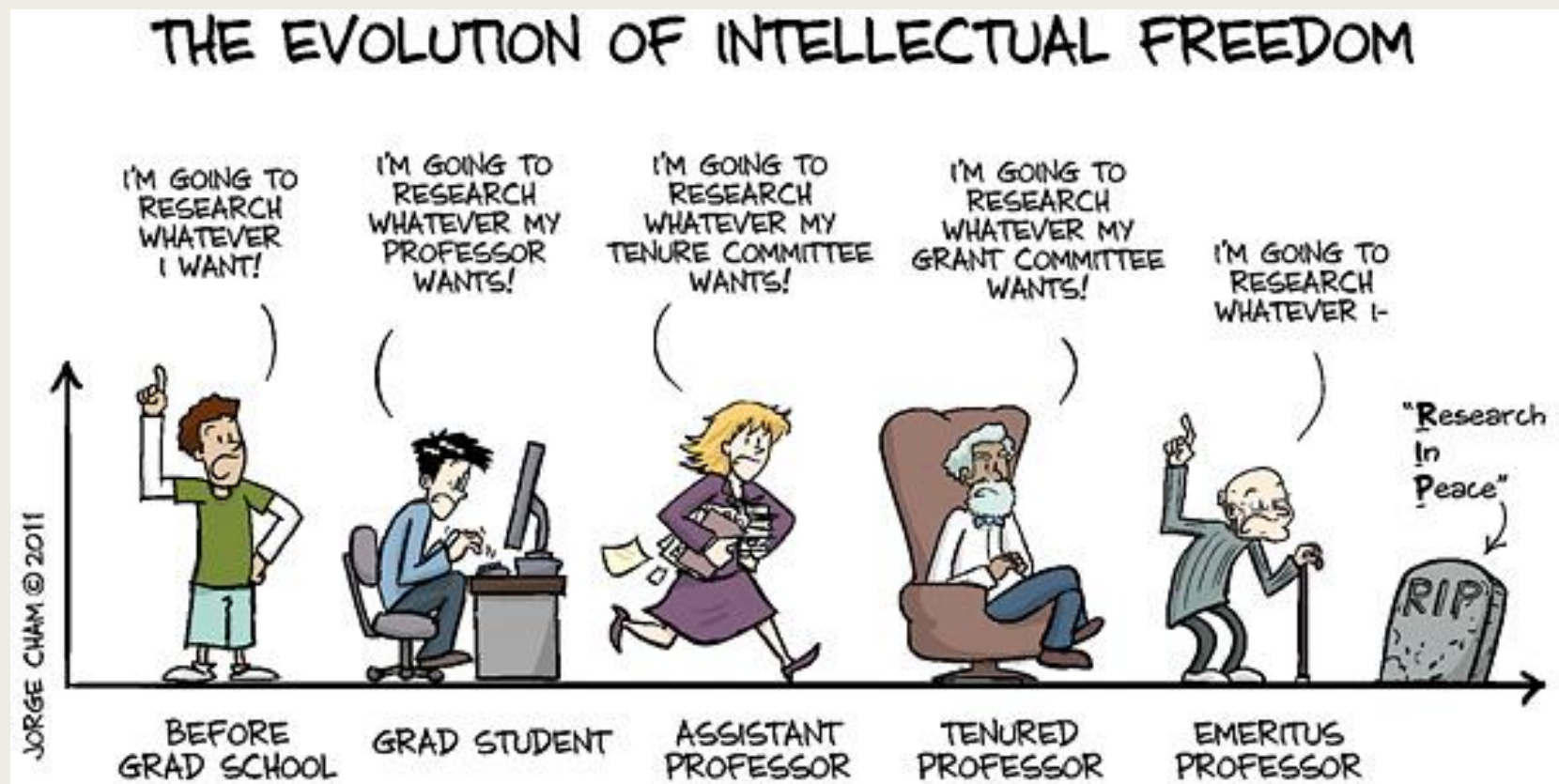
*Is just “doing” research enough for any of these....probably not anymore*

- Presentations (posters, talks), manuscripts



Gabrielle Lewis (Hollins)

# What are the deliverables expected from research?



# Defining Expectations

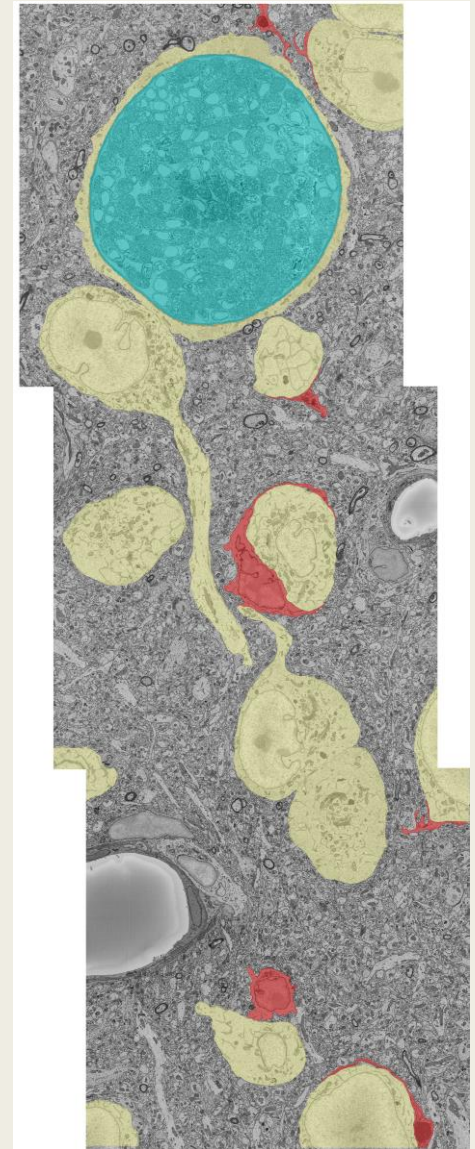
- How much time will they spend in lab / how much is required for success
- What do you expect them to accomplish  
*(FYI – I expect 90% of the experiments they try to fail so I also discuss failure rate not just success)*
- Defining a path to independence in lab.  
How much assistance they will get
- Defining the breadth and depth of their project *(newflash....an undergrad is probably not going to cure cancer)*
- Day to day experiments versus big picture
- Get excited about the small victories!



Alicia Kerr (VT TBMH)

# What are good elements of a research project

- Testable and novel hypothesis (although not all research is hypothesis driven)
- Reasonable scope
- Feasible
- Ability to generate data
- Multi-faceted (depending of mentee and time committed to project)



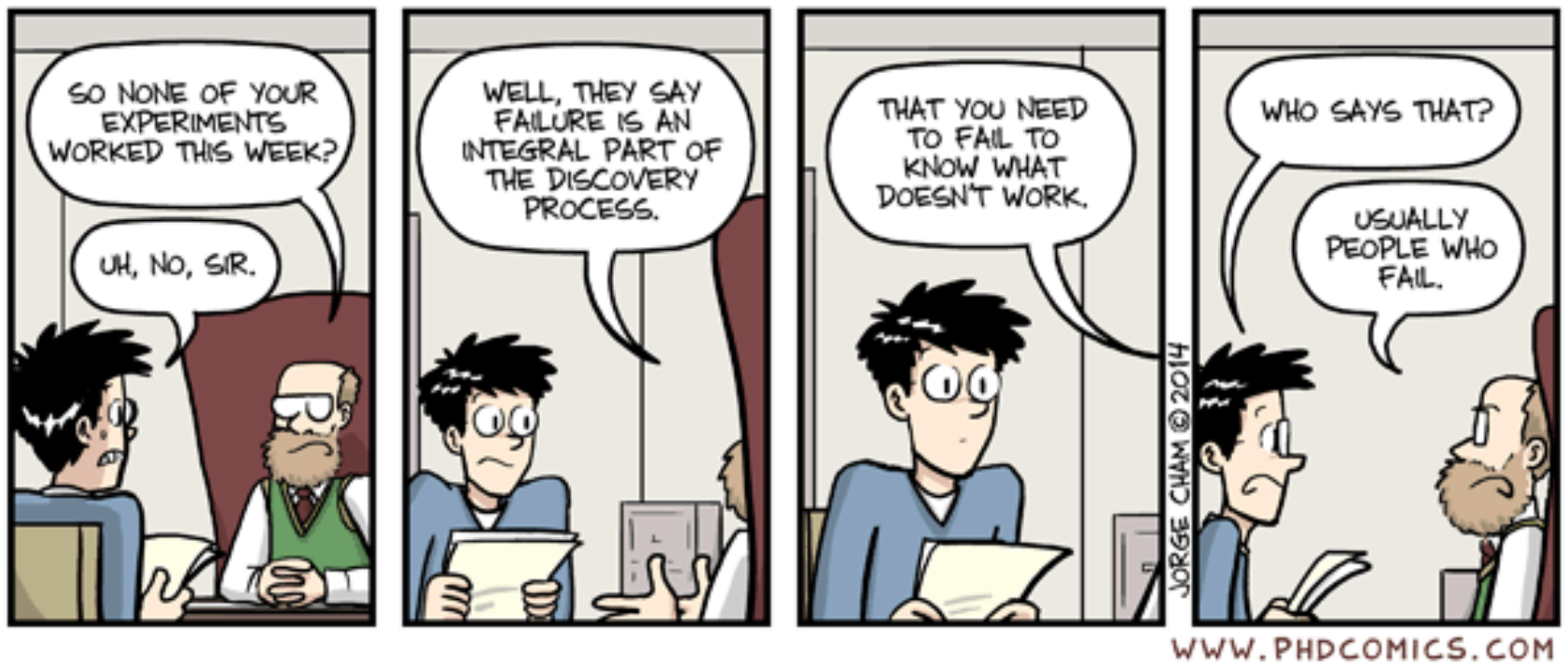


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# The challenge of mentoring research

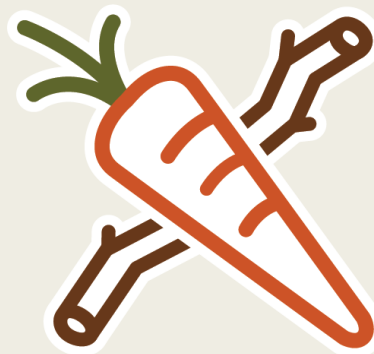
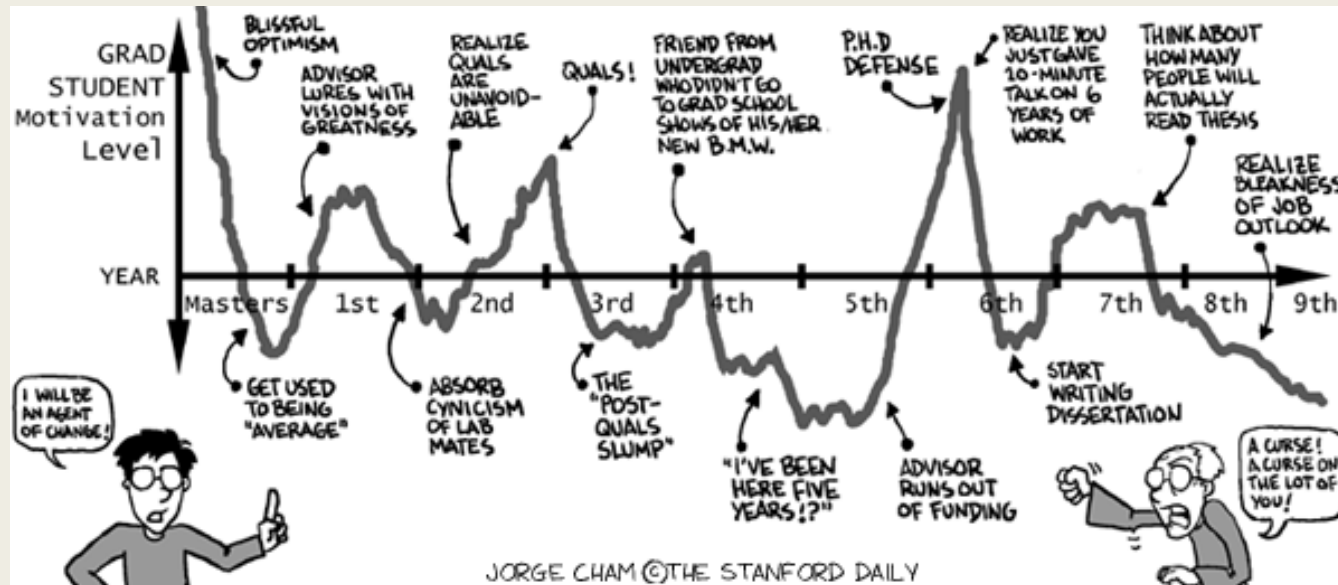
Many challenges come from the research itself.....



*(That's why we call it RE-search)*

# The challenge of mentoring a researcher...

But mentoring comes with many other challenges..... like....motivation



*"Even a blind squirrel will find an acorn sometimes"*

# The challenge of mentoring ...

...personnel challenges (multiple conflicting personalities in a lab)

...personal issues

...trainee turnover (they don't stay forever....and remember you need to help them advance)

...visa issues


...countless other issues you deal with as a mentor (and supporter)

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# Evaluation


- Yes, often!
- Lab meetings, one-on-one meetings, trainee seminar series
- Discuss progress, productivity, scientific development, hurdles, issues
- Individual Development Plan



## INTRODUCING myIDP: A CAREER PLANNING TOOL FOR GRADUATE STUDENTS AND POSTDOCS

Cynthia Fuhrmann<sup>1,4</sup>, Bill Lindstaedt<sup>1</sup>, Jennifer Hobin<sup>2</sup>, Philip Clifford<sup>3</sup>

<sup>1</sup>University of California, San Francisco, <sup>2</sup>Federation of American Societies for Experimental Biology, <sup>3</sup>Medical College of Wisconsin, <sup>4</sup>now at University of Massachusetts Medical School




### Introduction

- Individual Development Plans (IDPs) can help graduate students and postdocs clarify professional development needs and set attainable career goals.
- Survey data show that trainees would be more likely to develop an IDP if they had assistance with the process.
- Few trainees have access to in-person career counseling services.
- myIDP fills this gap, by providing online guidance through the process of long- and short-term career planning, and facilitating access to career resources tailored to PhD-level scientists.

### Features of myIDP

myIDP guides trainees through the process of creating an Individual Development Plan:




**Features include:**

- Exercises to help you examine your skills, interests, and values.
- A list of 20 scientific career paths with a prediction of which ones best fit your skills and interests.
- A tool for setting strategic goals for the coming year, with optional reminders to keep you on track.
- Articles and resources to guide you through the process.
- Options to save materials online and print them for further review and discussion.
- Ability to select which portion of your IDP you wish to share with advisors, mentors, or others.







### myIDP is self-explanatory

In each section, Quick Tips quickly walk the user through the process.

Quick Tips link to in-depth articles, which provide more explanation and examples.



### Preview of myIDP

- User self-assesses skills, interests, and values.
 
- User is given a list of scientific career paths, with scores showing how their skills and interests match each career.
 
- Module provides links to articles, books, and professional societies related to each career path.
 
- User sets goals within module:
  - Career Advancement Goals
  - Skills Development Goals
  - Project Completion Goals
- User can print a summary report, with the option to hide sections that he/she prefers not to share with others.
 
- User can choose to receive automated monthly e-mails, reminding her/him of her/his goals for the month.
 

### Recommendations for Trainees



- Begin using myIDP early in your doctoral or postdoctoral training.
- Complete all of the myIDP exercises—but don't expect to complete them in a day, a week, or even a month. Career planning takes time, and should be an iterative process during which you periodically reassess your skills, values, interests, and career goals.
- Take advantage of myIDP's career planning resources and those available at your institution and through your disciplinary societies.
- Print your myIDP goals and opt to receive deadline reminders to keep you on track.
- Don't be afraid to discuss your career plans with your mentors.
- Consider sharing all or part of your IDP during discussions with mentors. Make this a separate conversation, not tacked on to the end of a standard research-focused meeting.


### Recommendations for Graduate Programs & Postdoc Offices




- Publish availability of myIDP to both mentors and trainees. Convey to mentors that students & postdocs want assistance with their career planning.
- Offer workshops or courses to demonstrate myIDP and help trainees begin the process.
- Engage with your campus Career Center, if available. The exercises in myIDP can facilitate trainees' discussions with career counselors.
- Formally integrate myIDP into your institution's training programs. For example, some institutions require students or postdocs to complete an IDP annually. myIDP allows trainees to submit a portion of their IDP as proof of completion.

### Where can I find myIDP?

[myIDP.sciencecareers.org](http://myIDP.sciencecareers.org) (open to all, free of charge)

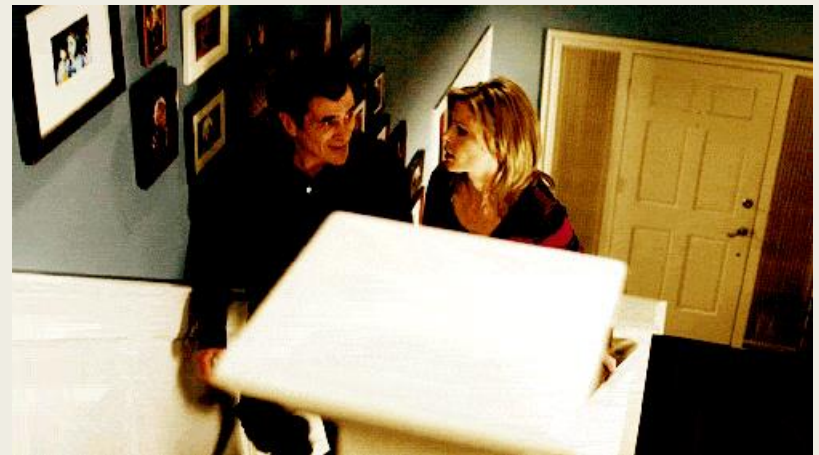
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# Summary

- The research mentor as supporter, advisor, sponsor and role model committed to trainee advancement
- Clearly set goals and expectations for a successful mentoring experience
- Every mentee will be different
- There will be challenges and mentoring is a constant learning experience
- Communication



Phil Dunphy (Modern Family)



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