Faculty Workshop in Mentoring Biomedical PhD Students at Rutgers

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School of Graduate Studies – New Brunswick/Piscataway

Ann Stock, PhD and Maish Yarmush MD/PhD
Biotech Training Program

Sept 9, 2019
Rationale for Mentoring the Mentors
NIH Funding Timeline

New PhDs vs Available Faculty Positions

Data source: NSF 2011, 2012
Schillebeeckx et al. (2013) Nature Biotechnology 31:938-941

AAMC Washington DC Feb 2018
Changing Times

According to a recent report by the NIH Biomedical Workforce Working Group, approximately 23% of PhD graduates will pursue academic positions, while 77% will pursue other career options.
NIGMS new T32 mechanism and “π shaped” scientist

- Career Development iJOBS
- Communicating Science class
- Biostatistics
- Quantitative/computational tracks
- This is for the students but what about institutional change that impacts the faculty?

AAMC Washington DC Feb 2018
7 Principles of Effective Mentoring Relationships

1. Cultivating ethical behavior
2. Effective communication
3. Aligning expectations
4. Fostering independence
5. Assessing understanding
6. Promoting professional development
7. Addressing equity and inclusion

From Xenia Morin
Handelsman, Pfund, Branchaw et al
Entering Mentoring and Entering Research
Academic Resources at Rutgers
Website: your resource for everything
http://rwjms.rutgers.edu/education/gsbs/

Join our groups and also email us your news to post!

Google calendar
- Seminars
- Career development events
- Thesis defenses
- Workshops
- Can link to your calendar
International Students

Rutgers Global–International Student and Scholar Services provides immigration services and advising to help international students maintain legal status throughout their time at Rutgers, and offers programs with an international focus for all members of the university community. The center provides:

- Personal advising sessions on immigration, cross-cultural, and other personal matters
- Workshops on F-1 and J-1 immigration-related matters for international students, and university partners
- An enjoyable, informative orientation program for incoming international students
- A regular series of cross-cultural social programs to help you acclimate to U.S. and Rutgers culture, called the International Friendship Program (IFP)
- Academic support specific to international student services

Services at 30 College Avenue, New Brunswick are available 8:30am-5:00pm, five days a week, except on Wednesdays, when the office is not open to student walk-in visits. https://global.rutgers.edu
Database for Tracking Graduate Students to Ensure Timely Progress and Measure Outcomes for Training Grants

- GPA
- Ethical Scientific Conduct Initial and Refresher
- Biostatistics course
- Qualifying Exam A
- Qualifying Exam B
- IDPs
- Annual thesis committee meetings
- Funding sources
- Fellowships
- Publications
- Time to defense
- Placement information
- Months of research before entering grad school
Competencies learned in graduate school

• **Broad conceptual knowledge** - core courses
• **Deep knowledge of a specific field** - upper level courses, thesis work, and journal clubs
• **Critical thinking** - reading papers, planning experiments, reviewing grants and manuscripts
• **Experimental skills** - rotations and thesis lab, collaborations
• **Responsible conduct of research** – Ethical Scientific Conduct initial and refresher
• **Rigor and reproducibility** - biostatistics classes
• **Computational skills** – computer programming workshop and classes
• **Collaboration/Teamwork** – working with other labs and within lab, student organizations
• **Management and emotional intelligence skills** - manage your own project, supervise undergraduates, interact with faculty and peers
• **Leadership and professionalism** – join student organizations, volunteer for events
• **Communication skills** - presentations in lab, university, and national meetings, writing manuscripts and fellowships, Comm Sci class

FOBGAPT2 meeting 2017
1. Cultivating Ethical Behavior

- Course in Responsible Conduct of Research
- Rigor and Reproducibility
- Resources for reporting unethical behavior
Ethical Scientific Conduct
Course No. 16:115:556

- This course is required for Biomedical PhD students and Masters of Science Biomedical students.
- The course complies with NIH guidelines for RCR training.
- Students will receive 1 credit for successfully completing the course. Pass/Fail
- Postdoctoral fellows as well as F33 and K award recipients are invited to participate in the course and will receive a certificate of completion after attendance at a minimum of eleven one-hour weekly meetings.
- Format is lecture by content expert for 30 min followed by small group case discussions for 30 min led by faculty from all joint graduate programs (ALL FACULTY SHOULD TEACH THIS ONE TIME FOR TRAINING GRANTS and RCR COMPLIANCE).
- Weekly written assignments.
- Students in their 5th year graduate school must take a refresher training course (16:115:558) that is four 2 hour sessions of case study discussion.
Ethical Scientific Conduct Syllabus

- Mentor-Mentee Responsibilities and Relationships
- Data Acquisition and Laboratory Tools: Management, Sharing and Ownership
- Research Misconduct and Policies for Handling Misconduct
- Plagiarism, Academic Rules, Copyright
- Responsible Authorship and Publication
- Peer Review
- Conflict of Interest – Personal, Professional, and Financial
- Scientist as Responsible Member of Society
- Intellectual Property and Technology Transfer
- Collaborative Research in Academia and Industry
- Policies for Animal Subjects in Research
- Policies for Human Subjects in Research
- Contemporary Ethical Issues in Biomedical Research and the Environmental and Society Impacts of Scientific Research
What to do if you suspect misconduct

- Rutgers Policy on Research Misconduct 90.2.2
  http://policies.rutgers.edu/view-policies/research-section-90#2

- Talk to research ombudsperson (e.g. Paul Manowitz for RWJMS)
  http://rwjms.rutgers.edu/research/orsp/documents/RWJMSResearchombudsperson.pdf

- Report to Campus Research Advisory Board
Biostatistics Classes

• As per NIH requirement to increase training for rigor and reproducibility of science
• New criteria for NIH grants: sample size power analysis, rigorous statistical analysis, blinding, randomization, inclusion and exclusion criteria, biological variables (sex), authenticate biological and chemical resources
• 1 of 3 schools to participate in pilot program of webinars funded by NIH R25 grant (DiCicco-Bloom PI) in 2016
• Several classes to satisfy requirement
  http://rwjms.rutgers.edu/gsbs/current/RigorandReproducibilityTraining.html
Clinical and Translational Opportunities

NIH Clinical and Translational Award (CTSA)

NJ Alliance for Clinical and Translational Science (NJ ACTS) (PI: Rey Panettieri MD)

Goal: $25M award to improve clinical and translational research across NJ

Institutions: Rutgers, Princeton and NJIT

Training Grant support: Kathy Scotto PhD

Educational Goal: to provide the curriculum and the resources so teams of researchers (PhD students, post-docs), physician scientists (MD-PhD students) and clinicians (MD students and clinical fellows) can tackle large medical issues

New educational initiatives (Clinical and Translational Certificate):
   Grant writing, Computational courses, Biostatistics, Communication, Team Science, Human Body 101, Clinical shadowing opportunities, Capstone Project
New Computational Biology Class

- Data Carpentry workshop through iJOBS every January (0 credit)
- Python workshop in June (0 credit)
- Computational Genomics - new course in Fall 2019 to learn R programming as relates to genomic data 16:761:505 (3 credits)
- Bioinformatics – Fall 16:765:585 (3 credits)

http://rwjms.rutgers.edu/gsbs/student_affairs/career.html
Graduate School Factlets

- General orientation for all graduate students plus biomedical orientation plus program specific orientation.
- Forms for each milestone including Annual Committee meetings.
- Electronic Thesis/Dissertation (ETD) can be embargoed for up to 2 years. Responsibility lies with student. Can use lay abstract before manuscripts are published.
- ORCID (unique identifier for researchers) are required of grad students and for NIH training grants.
- SOAR (open access) for manuscripts. [https://soar.libraries.rutgers.edu/](https://soar.libraries.rutgers.edu/)
- Peer Tutoring is available- ask your program director.
- Plagiarism is an issue – be alert and use TurnItIn [https://www.youtube.com/watch?v=uhv_yGNzHwA&feature=youtu.be](https://www.youtube.com/watch?v=uhv_yGNzHwA&feature=youtu.be)
Managing Student Projects
2. Effective communication

- How often will you meet together?
- Is there a preferred means of communication?
- Are there times when you will not be available?
- When do we need to keep conversations confidential?
- Will an agenda be developed before each meeting and will action items be developed after each meeting?
- How will these communications be recorded?

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Entering Mentoring and Entering Research
3. Aligning Expectations

- Does the mentor have other responsibilities that might impact the relationship?
- Does the mentee have other responsibilities that might impact the relationship?
- Do you want to share calendars?
- How will research topics be developed? How much should mentee contribute vs mentor?
- Who will be responsible for writing manuscripts? What is the preferred mechanism for getting edits?
- How will the research be funded? What does the mentor expect of the mentee regarding funding?

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4. Fostering Independence

- How will the mentoring relationship evolve or progress?
- Are there upcoming milestones or transitions for the mentee?
- Will other people be involved in the mentoring relationship?
Compact Between Biomedical Graduate Students and Their Research Advisors by The Association of American Medical Colleges (AAMC) 2017
http://rwjms.rutgers.edu/gsbs/current/forms.html
Commitments of Research Advisors (AAMC)

• Throughout the graduate student’s time in my laboratory, I will be supportive, equitable, accessible, encouraging, and respectful.
• I will be committed to meeting one-on-one with the student on a regular basis. I will regularly review the student’s progress and provide timely feedback and goal-setting advice.
• I will be committed to the graduate student’s research project.
• I will help the graduate student select a thesis/dissertation committee.
• I will provide an environment that is intellectually stimulating, emotionally supportive, safe, equitable and free of harassment.
• I will demonstrate respect for all graduate students as individuals without regard to gender, race, national origin, religion, disability or sexual orientation, and ID will cultivate a culture of tolerance among the entire laboratory.
• I will be committed to providing financial resources, as appropriate and according to my institution’s guidelines, for the graduate student to conduct thesis/dissertation research.
• I will expect the graduate student to share common laboratory responsibilities and use resources carefully and frugally.
• I will discuss with the graduate student authorship policies regarding papers.
• I will be knowledgeable of and guide the graduate student through the requirements and deadlines of the graduate program and the institution, as well as teaching requirements, if any, and human resources guidelines.
• I will encourage the graduate student to attend and present their research at scientific/professional meetings and make an effort to secure and facilitate funding for such activities. In addition, I will provide opportunities for the student to discuss science and their research findings with colleagues and fellow scientists within the institution and broader scientific community – for example, at lab meetings, research days, and seminars.
• I will promote the training of the graduate student in professional skills needed for a successful career. These skills include but are not limited to oral and written communication, grant writing, management and leadership, collaborative research, responsible conduct of research, teaching and mentoring.
• I will create an environment in which the student can discuss and explore career opportunities and paths that match their skills, values, and interests and be supportive of their career path choices.
Commitments of Graduate Students (AAMC)

- I acknowledge that I have the primary responsibility for the successful completion of my degree.
- I will meet regularly with my research advisor and provide him/her with updates on the progress and results of my activities and experiments.
- I will work with my research advisor to provide updates on the progress and results of my course work, research, and professional and career development activities.
- I will work with my research advisor to develop a thesis/dissertation project.
- I will work with my research advisor to select a thesis/dissertation committee.
- I will be a good lab citizen.
- I will maintain detailed, organized, and accurate research records. With respect to data ownership, I acknowledge that original notebooks, digital files and tangible research materials belong to the institution and will remain in the lab when I finish my thesis/dissertation so that other individuals can reproduce and carry on related research, in accordance with institutional policy.
- I will discuss policies on work hours, medical leave, and vacation with my graduate program and research advisor.
- I will discuss policies on authorship and attendance at professional meetings with my research advisor.
- I will be knowledgeable of the policies and requirements of my graduate program, graduate school, and institution.
- I will attend actively participate in laboratory meetings, seminars, and journal clubs that are part of my educational program.
- I will be knowledgeable of all institutional research policies.
- I acknowledge that I have the primary responsibility for the development of my own career.
Funding for Students
• $45 million in external fellowships and awards in the last 17 years

• Help identifying funding sources

• Virtual Office on Sakai

• Help with application logistics

• Feedback, editing, and revising

• ~17% of current students have external fellowships

• Meeting every September with students and mentors who have been successful obtaining funding and faculty from study section

http://gradfund.rutgers.edu/
Fellowship Application Workshop for Biomedical PhD Students

Wednesday September 11, 2019
2:45 – 4:45pm
RWJMS Research Tower
675 Hoes Lane West
Room V10
Piscataway, NJ

This workshop will include presentations by:
1) GradFund on how to use their resources at Rutgers for identifying fellowship opportunities and applying for them.
2) A faculty member who serves on NIH study section and reviews fellowship applications with pointers on what reviewers are looking for.
3) A panel of graduate students and their mentors who have successfully obtained funding in the past few years from various organizations.

No registration required.
For more information contact Dr. Janet Alder janet.alder@rutgers.edu
Courses for writing

Grant Writing Basics spring course
Guidance and practice in writing a biological research grant proposal focusing on Specific Aims. 16:681:601

Advanced Studies in Neuroscience or Psychology to write an NRSA F31 Grant Proposal
The purpose of the course is to facilitate each student's submission of an F31 application for the December deadline. 16:830:504

Graduate Courses in Writing
355:500  Prose Style
Focuses on the organization of arguments, paragraph development, sentence structures, and mechanics.

355:502  Graduate Writing
Focuses on academic tone, syntax, and the drafting and revision process in order to improve skills necessary for successful graduate work.

355:506  Writing for Publication
Focuses on overall organization of published work as well as writing and editing at the level appropriate for a journal submission in the student's graduate field.

355:508  Writing the Dissertation
Focuses on writing at the level appropriate for a dissertation in the student’s respective field.
Grantwriting Fundamentals for Biomedical PhD Students

This workshop covers the basics of converting your highly complex project ideas into a compelling story. The focus is on the creation of a flawless "Specific Aims" page as the foundation of any well-engineered grant. This workshop will be useful for those writing Pre-doctoral fellowships as well as their Propositional Qualifying Exams.

Friday May 3, 2019
12-1:30pm – Lunch will be served
RWJMS Research Tower, 675 Hoes Lane West
Deans Conference Room 123, Piscataway
RSVP to Tina Marottoli: tina.marottoli@rutgers.edu

The workshop will be run by Paul Copeland, PhD who is the Director of Research Development from the Office of Research and Economic Development and a Professor in the Department of Biochemistry and Molecular Biology. Dr. Copeland teaches a course every spring on grant writing and is offering this workshop based on the techniques used in his course.
Boiler plate paragraphs for fellowship writing

http://rwjms.rutgers.edu/gsbs/student_affairs/fellowship.html

See below for some materials and please contact Janet Alder (janet.alder@rutgers.edu) for additional help if needed.

- RCR training
- Rigor and Reproducibility training
- iJOBS career development program
- Individual Development Plans
- Description of Institutional Environment and Commitment to Training and Additional Educational Information
- Sample successful NIH F applications, NSF, EPA, AHA, NJ state fellowships as well as diversity supplements upon request.
Professional Development for Students
5. Assessing Understanding

How will the trainee receive feedback on their performance?

- Annual Committee Meeting
- Individual development plan
Individual Development Plans (IDP)

• Educational research has shown that IDPs increase productivity (e.g. [http://postdoc.sigmaxi.org/results/](http://postdoc.sigmaxi.org/results/))

• NIH is now requiring IDPs for all training grants and NIH Office of Management and Budget sent notice that grad students have dual roles and must engage in both training and career development.

• **First** and third year graduate students will do the AAAS online IDP ([http://myidp.sciencecareers.org/](http://myidp.sciencecareers.org/)) and upload to Sakai by May 31.

• Second and fourth year graduate students will complete Rutgers IDP modeled from the ones at Scripps and UCSF. Faculty complete a section and review IDP with student by May 31. Student then meets with Graduate Program Director (2nd years) or with someone in their potential career area (4th years) by August 31.
6. Promoting Professional Development

- Training in technical and discipline-specific skills
- Professional conferences and meetings
- Training in professional skills
- Exposure to career options
- Networking
New Course in Communicating Science

- Response to input from industry and academia
- Grant from Burroughs Wellcome Fund (Ponzio PI)
- Only one in the country with communications as its goal
- Techniques from Alan Alda Center
- Course started in spring 2017
- 3 Minute Thesis Competition for first time in 2018
Rutgers iJOBS

Program Overview
BEST Awardees

17 Universities
$2 million for 5 years
Infrastructure support
No direct fellow funding

1. Cornell U
2. Emory/Georgia Tech
3. NYU
4. U Mass Worcester
5. UC Davis
6. UCSF
7. U Colorado Denver
8. Vanderbilt U
9. Virginia Polytech
10. Wayne State

11. Rutgers U
12. U Chicago
13. U North Carolina
14. U Rochester
15. UC Irvine
16. Boston U
17. Michigan State

Common goals
Shared programming
Active evaluation
Process improvement
iJOBS Participation

Rutgers Graduate Students
- SGS (New Brunswick/Piscataway/Newark)
- GSN (Newark)
- GSC (Camden)

Rutgers Postdocs
- RWJMS
- NJMS
- SAS New Brunswick
- SoE
- SoP
- SEBS
- SAS Newark
- SAS Camden

Free shuttle transportation provided
Phased Approach

Now that you are successful in your chosen career, share your experience with new trainees.

Ready yourself for career placement and search for a position.

Go forward and define your career focus. Apply for “trainee“ status and, if accepted*, take advantage of individualized mentoring and career planning support.

Sample the program to see if a non-academic career is for you; register for programming as meets your needs.

Phase 1 iNQUIRE

Phase 2 iINITIATE

Phase 3 iMPLEMENT

Phase 4 iNSTRUCT
Holistic Programming

Phase 1: iNQUIRE
- SciPhD Leadership and Business Training
  - Site visits
  - Networking sessions
  - Career panels
  - Case studies
  - Primers
  - Workshops
  - Career fair
  - Web portal access

Phase 2: iINITIATE
- Individual development planning & mentorship
- Career-specific courses
- Professional shadowing
- Resume development
- Interview preparation
- Job placement and tracking

Phase 3: iIMPLEMENT
- Continued participation
- Support and mentoring

Phase 4: iINSTRUCT

SciPhD Leadership and Business Training
Site visits
Networking sessions
Career panels
Case studies
Primers
Workshops
Career fair
Web portal access
Examples of Career Tracks

- Principal investigator
- Bench Research in Government, Pharma or Biotech
- Teaching-intensive careers in academia
- Science and Health Policy
- Patent Law
- Tech Transfer and Business Development
- Clinical Research
- Regulatory Affairs
- Health and Science Data Analysis
- Business Consulting
- Scientific Writing and Medical Communications
- Medical Affairs
- Non-profit and Foundations
- Finance and Equity Research
- Publishing
- Food safety
- Journalism
- Teaching Education Outreach
- Entrepreneur
SciPhD: Leadership and Business Skills for Scientists

Provided by Human Workflows, LLC

- The Business of Science
- Major Leadership Styles
- Successful Communications as a Scientist
- Developing Your People
- Networking and the Interview Process
- Team Performance Tools
- Negotiations
- Financial Literacy
- Strategic Project Management for Scientists
Representative Site Visits

- Merck (4)
- Genewiz (2)
- Bristol-Myers Squibb (3)
- Novartis (2)
- GlaxoSmithKline
- Regeneron (2)
- Eli Lilly (2)
- Celgene (2)
- Janssen
- Commercialization Center for Innovative Technology (2)
- Institute for Life Science Entrepreneurship (2)
- Enterprise Development Center
- Sanofi Aventis
- Covance
- Kashiv
- Ferring Pharmaceutical

- NJ Dept. of Health (3)
- Stryker
- Colgate-Palmolive
- Envigo
- Ethicon
- McCann Health
- Bayer (2)
- PTC Therapeutics
- Nanion Technologies
Representative Workshops: **Job Simulation**

- Entrepreneur – what is involved in starting a biotech
- Science Policy – write a policy memo
- Business Development – decide whether to acquire a new company
- Pharma R&D - design preclinical trial to optimize clinical success
- Publishing – decide whether to accept a manuscript
- Pharma Market Research Analysis – report on whether drug is worth pursuing
- Medical Affairs – Medical Informaticist vs MSL role play
- Consulting – recommend approach to launch new clinical trial
- Regulatory Writing – prepare an Investigative Brochure
- Medical Communications – create slide deck for physician
- Patent Law – rewrite patent to demonstrate originality
- Mergers and Acquisitions – decide how much to bid on a new company
Representative Workshops: Primers

- Project Management
- R with DataCarpentry - programming and how to deal with large datasets
- Good Laboratory Practice (GLP)
- Pharmokinetics and Pharmodynamics (PK/PD)
- Immuno-oncology Research
- Communicating Science with Alan Alda - elevator pitch and improv to connect with audience
- Scientific Storytelling
Representative Workshops: Job Search

• Targeted resumes
• LinkedIn profiles with photo shoot
• Networking skills
• Transferrable skills
• Interviewing skills
• Informational interviews
• Job search using staffing agencies
• Finding and applying for an internship
• Goal setting and time management
• How to prepare for job fairs
• International students seeking employment in USA
• Self assessments (StrengthsFinder, Birkman)
• Emotional Intelligence and influencing others
Phase 2 iINITIATE
Career Track Example
Skill Classes
One 40-Hour Class

Programming Methodologies for Numerical Computing
Drug Discovery through Preclinical Development
Introduction to Public Administration; Public Policy Formation
Clinical Trials, Adverse Event Reporting, Post-Marketing
Practical Aspects of Clinical Trial Design
Bioengineering in Biotech and Pharma Industries
Fundamentals of Regulatory Affairs

US Healthcare System and Pharma Managed Markets
Drug Development: From Concept to Market
Project Management
Pharma Product Management
Organizational Behavior
Innovation and Entrepreneurship

Rutgers Programs
Business
Public Health
Engineering
Medicine
Business and Science
Health Related Professions
Rutgers Programs
Professional Shadowing and Mentoring

- Each trainee is matched to a mentor and a shadowing opportunity relevant to their chosen track with industrial, institutional or governmental partners. 72 hours over a whole semester or over 2 weeks.

- Each trainee is assigned a professional mentor and uses the Individual Development Plan (IDP) as a framework for growth.
iJOBS Cohort Participation

In 4 years:
2075 eligible trainees
944 attended at least 1 event (46%)
20,078 person hours
125 non-Rutgers participants

Trainee Academic Standing

Total pool
71% predoc
29% postdoc
Overall SciPhD Outcomes

Within 4 years of program initiation, with a cohort of highly engaged trainees, have completed either an iJOBS externship, independent internship and/or secured professional employment.

<table>
<thead>
<tr>
<th>Years</th>
<th>Number of trainees</th>
<th>Phase 2 Externship %</th>
<th>Independent Internship %</th>
<th>Job or Postdoc %</th>
<th>Still in training %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-2018</td>
<td>205</td>
<td>20</td>
<td>13</td>
<td>60</td>
<td>40</td>
</tr>
</tbody>
</table>
Non-Whites are Participating in iJOBS at a Higher Rate Relative to the Total Pool

Females are Participating in iJOBS at a Higher Rate Relative to the Total Pool
Current Position of SciPhD Participants (n = 122)

- **Academia**: 29%
- **For Profit**: 53%
- **Government**: 5%
- **Nonprofit**: 7%
- **Unknown**: 6%

**ALL SECTORS**
For Profit – Research vs Science-Related

FOR PROFIT >> ALL CAREER TYPES

Science-related 49%

Primarily Research 48%

Not Related to Science 3%
Academia – All Career Types

ACADEMIA >> ALL CAREER TYPE

- Primarily Research (83%)
- Primarily Teaching (6%)
- Science-related (8%)
- Further Training or education (3%)
Research Job Functions

- Postdoctoral: 40%
- Faculty: tenure track unclear or not applicable: 1%
- Group leader (research): 1%
- Research staff or technical director: 54%
- Clinical research management: 1%
- Clinical services: 1%
Science-Related Job Functions

**SCIENCE-RELATED JOB FUNCTION**

- **Administration**: 8%
- **Business development, consulting, and strategic alliances**: 26%
- **Data science, analytics, and software engineering**: 8%
- **Science education and outreach**: 3%
- **Science policy and government affairs**: 5%
- **Science writing and communication**: 26%
- **Sales and marketing**: 11%
- **Regulatory affairs**: 5%
- **Technical support and product development**: 3%
- **Intellectual property and law**: 5%
iJOBS Participants have decreased time to defense

Time to defense vs participation
Two tailed t test p = 0.0048

Time to degree vs participation
Two tailed t test p = 0.076

n = 103  n = 135
Trainees with greater iJOBS Participation trend to decreased time to degree

Time to degree vs Phase 2
Two tailed t test $p = 0.18$

Time to degree vs dose
ANOVA, $p = 0.16$
iJOBS Participants have more publications than non participants

- Total pubs vs participation
  - Two tailed t test p = 0.026
  - Control: 2.90, iJOBS: 3.86

- 1st author pubs vs participation
  - Two tailed t test p = 0.18
  - Control: 1.18, iJOBS: 1.41
How iJOBS Benefits Rutgers

- Leadership, business, teamwork, and communications skills necessary for ALL careers
- NIH Training grants require career development component
- Recruiting of graduate students
- Takes burden off of faculty for advising towards careers they are not familiar with
- Student mental health, motivation, productivity
- Increased interaction between Rutgers and industry
Student Issues
Mental Health Issues in Graduate Students

Work organization and mental health problems in PhD students

Katia Levecque\textsuperscript{a,b,*}, Frederik Anseel\textsuperscript{a,b,c}, Alain De Beuckelaer\textsuperscript{d,e,a}, Johan Van der Heyden\textsuperscript{f,g}, Lydia Gisle\textsuperscript{f}

Belgium
UC Berkeley Happiness and Well-Being Report

- 47% of Ph.D. students reached the 10 of 30 points on the scale to be considered depressed (n = 790).
- Only 37% of master's students did so.
- Highest rate of apparent depression was in arts and humanities (64%).
- Biological or physical sciences and engineering (43-46%), social sciences (34%) and business (28%).

Factors related to how the graduate students view their lives:
- Career prospects
- Overall health
- Living conditions
- Academic engagement
- Social support
- Financial confidence
- Academic progress and preparation
- Sleep
- Feeling valued and included
- Adviser relationship
Nature 2017 Study Indicates Students Do Not Seek Help

Survey of 5700 PhD students worldwide
Woolston, Nature 2017
General Warning Signs for Depression (American Psychiatric Association)
• Depressed mood most of the day, nearly every day
• Loss of interest or pleasure in fun activities
• Weight loss or gain
• Decrease or increase in appetite
• Insomnia or hypersomnia
• Feeling fatigue or low energy
• Feelings of worthlessness
• Excessive guilt
• Difficulty with thinking, concentrating, indecisiveness
• Thoughts of death or suicidal ideation

General Warning Signs for Anxiety (American Psychiatric Association)
• Excessive worry with no specific source
• Exaggerated startle reflex
• Inability to sleep due to worry
• Difficulty concentrating
• Trouble controlling worry thoughts
• Fatigue
• Muscle tension
• Feeling that things will always end badly
• Avoiding social situations
What to Do If a Student Shows Signs of Depression or Anxiety

Be direct with your concerns. Tell them what you are seeing that has you worried

Helpful responses:
- Listening
- Conveying an understanding
- Expressing that you care
- Normalizing what they are feeling
- Validate the student’s experiences and talk to them about helpful resources such as CAPS or the Student Wellness Program
  - “Everyone needs help sometimes.”
  - “It sounds like you are dealing with a lot, it might be helpful to have someone to talk with.”

Unhelpful responses:
- Judging
- Minimizing
- Implying what they are feeling is their fault
Let’s Talk Drop in Counseling for the School of Graduate Studies

"Let’s Talk" is a service that provides easy access to informal, confidential consultations with Rutgers Counseling and Psychiatric Services (CAPS).

Our own grad school community-based counselor will be around for 30 min drop in sessions. No appointment is necessary! There may be a wait if the counselor is currently meeting with another student but every effort will be made to meet with all students who wish to meet that day.

School of Graduate Studies "Let’s Talk"
Tuesdays, 2:30-4:30
Robert Wood Johnson Medical School Research Tower, Room V40 (ground floor of Research Tower near entrance by circular driveway with flagpole. Room is near lecture hall V10)
675 Hoes Lane West,
Piscataway, NJ 08854
CAPS Counselor: Jessica Trusiani

For a complete list of Counseling and Psychological Services
http://health.rutgers.edu/medical-counseling-services/counseling/
7. Assessing Equity and Inclusion

- Will the mentor and mentee discuss their multiple aspects of their identity? This might include race, ethnicity, gender identity, socioeconomic status, age/generational, sexual orientation, class, religion etc...
- Are there aspects of identity that should remain private?
Policy Prohibiting Harassment

• Covers
  ✹ Faculty
  ✹ Staff
  ✹ Student Employees
  ✹ Vendors
  ✹ Contractors
  ✹ Subcontractors
  ✹ Volunteers

• Basis
  ✹ Sex/Gender
  ✹ Religion
  ✹ Color
  ✹ National origin
  ✹ Ancestry
  ✹ Age
  ✹ Race
  ✹ Sexual orientation
  ✹ Disability
  ✹ Marital/veteran status
  ✹ Domestic partnership/civil union status
  ✹ Gender identity and expression
  ✹ Atypical hereditary cellular or blood trait
Administrators, supervisors, and faculty members ...

- have an affirmative obligation to report complaints of discrimination and harassment to the Office of Employment Equity
- should cooperate in any investigation
- should respect and protect the confidentiality of the parties and witnesses
- Avoid actions that may be interpreted as retaliation by complainants or witnesses
Resources for Discrimination and Harassment Issues

- Policy Prohibiting Discrimination and Harassment
- Sexual Misconduct Policy
- Policy Prohibiting Workplace Violence
- Conscientious Employee Protection Policy
- OEE Complaint Process
- OEE Formal Complaint Form
- Resource Guide
Office of Employment Equity

57 Highway 1, Cook Campus (ASB II)
848-932-3973

http://uhr.rutgers.edu/uhr-units-offices/office-employment-equity
Employmentequity@hr.rutgers.edu

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Definition of a Learning Disability

• A permanent disorder which affects the manner in which an individual with average, or above average, intelligence takes in, retains and expresses information.

• There are specific learning disabilities in reading, writing and math and sometimes may be comorbid with other conditions such as ADHD, depression, anxiety, etc.
Possible signs you might notice for a learning disability

- Slow, labored reading - automaticity is never achieved
- Reading comprehension difficulties - inability to grasp the meaning of words, phrases or paragraphs
- Grasps the main idea more than the details
- Very poor handwriting and/or difficulty organizing thoughts on paper
- Student knows the material but performs poorly on tests
- Displays memory skill deficits and/or poor organizational skills
- Overlooks multiple steps in projects and papers
Resources to Assist a Student with a Learning Disability

If a student has disclosed they have, or think they might have a disability of any kind here are some resources:

• Office of Disability Services: https://ods.rutgers.edu
  • Focuses on providing academic accommodations- works with both graduate and undergraduate students

• Graduate School for Applied and Professional Psychology (GSAPP): https://ods.rutgers.edu/students/gsapp-screening-eval-main
  • Provides low cost (free with student health insurance) testing to those who may suspect they have a learning disability or ADHD or would like updated testing
Suggestions for dealing with a student with learning disability

- **STRUCTURE** - Structure your meeting so that the student understands the purpose of your meeting, what will be discussed and what the expected outcome will be.
  - Be aware of the environment in which you are meeting, and try to reduce outside distractions

- Present information in as many modalities as possible - if you are having a verbal conversation, follow up with an email

- If you suspect a disability, but are unsure how to proceed, consider the “bundle” approach
  - Bundle the resources you are referring the student to (Learning Center, Office of Disability Services & Writing Support)
Unconscious Bias

• Refers to a bias that we are *unaware of*, and which happens outside of our control. It is a bias that happens automatically and is triggered by our brain making quick judgments and assessments of people and situations, influenced by our **background, cultural environment** and **personal experiences**.
Impact Association Test

- https://implicit.harvard.edu/implicit/takeatest.html

The sorting test you just took is called the Implicit Association Test (IAT). You categorized Male and Female words with Career and Family.

Here is your result:

Your data suggest a moderate automatic association for Male with Career and Female with Family.

Your result is described as an "Automatic association for Male with Career and Female with Family" if you were faster responding when Career and Male are assigned to the same response key than when Career and Female were assigned with the same key. Your score is described as an "Automatic association for Female with Career and Male with Family" if the opposite occurred.

Your automatic preference may be described as "slight", "moderate", "strong", or "no preference". This indicates the strength of your automatic preference.

The IAT requires a certain number of correct responses in order to get results. If you made too many errors while completing the test you will get the feedback that there were too many errors to determine a result.

Note that your IAT result is based only on the categorization task and not on the questions that you answered.
How to Avoid Unconscious Bias

• Be aware/conscious
• Challenge stereotypes and counter stereotypical information
• Use context to explain a situation
• Reduce levels of bias – males & females on panels, cultural diversity on interview/selection panels, have criteria & use them
• Diversity of guest speakers & lecturers
• Inclusion in meetings
THANK YOU!