

Welcome to Rutgers iJOBS Annual Symposium

Ice Breaker

- Introduce yourself and talk to those at your table to find **at least 5 things you have in common with them.**
- It cannot be that you are all at this symposium or are part of iJOBS.



The background features a large, faint watermark of the Rutgers University seal, which is a circular emblem with a sunburst design and the text "RUTGERS THE STATE UNIVERSITY OF NEW JERSEY" around the perimeter.

RUTGERS

THE STATE UNIVERSITY
OF NEW JERSEY

Rutgers iJOBS Annual Symposium

October 25, 2023



Agenda for today

9:00 AM – 9:30 AM Welcome and iJOBS Program Update

Janet Alder, Co-Director

iJOBS Program at Rutgers University

9:30 AM – 10:30 AM Keynote Speaker

Brandon Higgs, PhD

Artificial Intelligence in Drug Development and the Impact on the Future Workforce

10:30 AM – 10:45 AM Break

10:45 AM – 11:15 AM Let's Hear from Our Phase 3 Trainees!

Facilitated by Doreen Badheka, Co-Director

iJOBS Program at Rutgers University

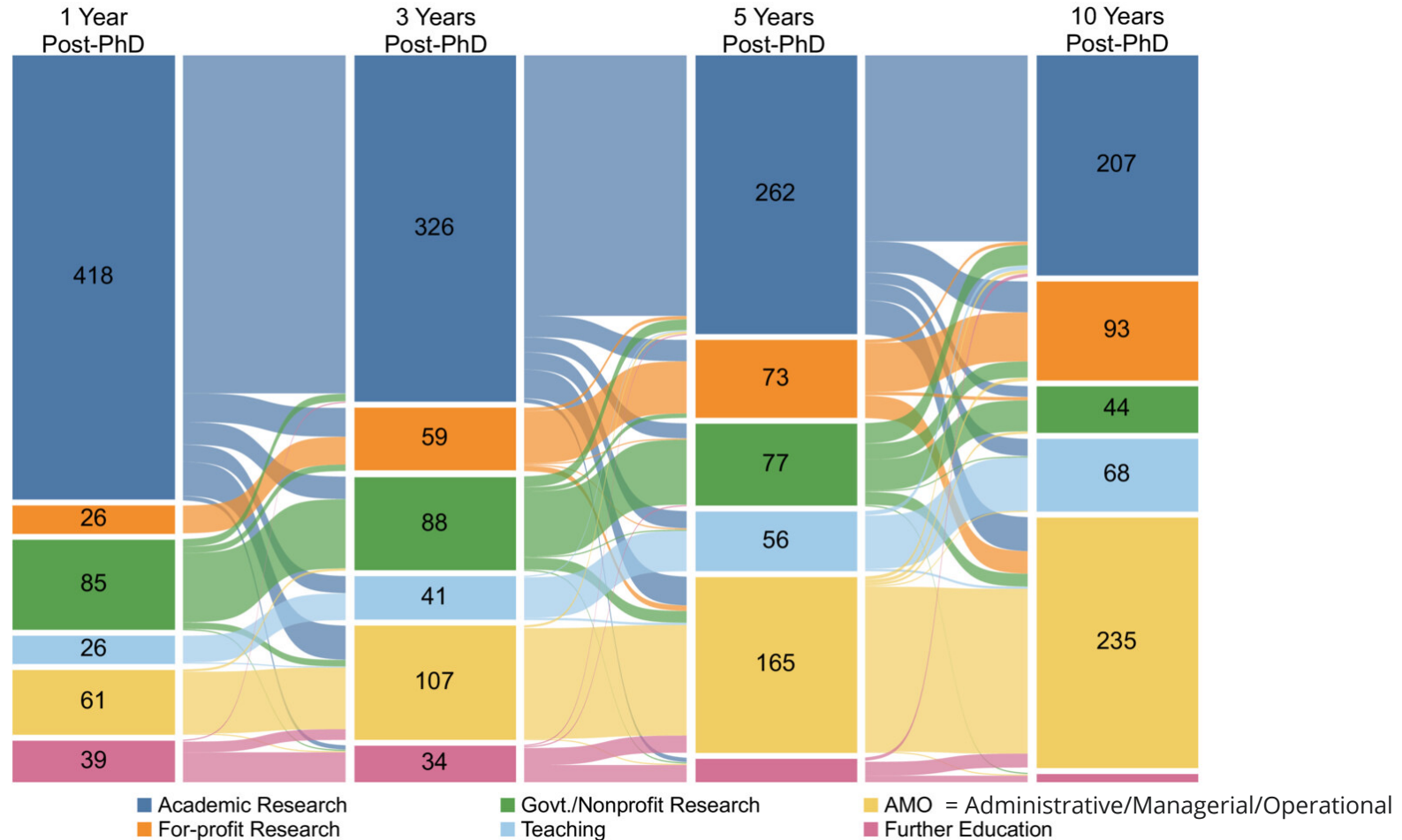
11:15 AM – 12:15 PM Professional Development Workshop

Supreet Bains-Sharma, PMP “Effective Teamworking”

12:15 PM – 1:00 PM Career Cluster Meetings and Networking Lunch

Industry Professionals and fellow trainees share advice during networking lunch.

Longitudinal study of biomedical sciences PhD careers shows only 30% in academia 10 years post-PhD



NIH BEST Grant that Inspired Rutgers iJOBS

17 Universities
\$2 million for 5 years (2014-2019)

Maish Yarmush
Jim Millonig
Susan Engelhardt
Janet Alder
Doreen Badheka

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

Excellent Professional Environment

The World's Cure Corridor

New Jersey

- 
- Over 3000 life science and biopharmaceutical establishments
 - 400 biotech companies
 - 13 of the 20 largest biopharmaceutical companies globally
 - 12 of the world's top medical technology companies
 - #3 state for R&D investment, and bioscience-related patents
 - 22,000 life sciences graduates annually

Professional and Trade Support Abounds



iJOBS Participants

RUTGERS

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



Flexible and Phased Programming



Phase 1



Phase 1
iNQUIRE

Representative Career Panels

- Faculty position at R1 institution
- Faculty position at Primarily Undergraduate Institution
- Bench research in Pharma and Biotech
- Medical Devices
- Postdocs in Industry
- Contract Research Organizations
- NIH
- FDA
- Computational Biology
- Data Science
- Consulting
- Science and Health Policy
- Patent Law
- Tech Transfer and Business Development
- Clinical Research
- Regulatory Affairs
- Scientific Writing and Medical Communications
- Medical Affairs
- Non-profit and Foundations
- Finance and Equity Research
- Publishing
- Food and Fragrance Industry
- Journalism
- Teaching Education Outreach
- Entrepreneur
- Plant and Agriculture Industry
- Non-faculty Jobs in Academia
- Tech and Sales Support



Representative Site Visits

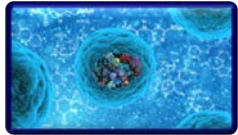
- Admera Health
- Genmab
- Amgen
- WuXi Biologics
- Pfizer
- Becton Dickinson
- Siemens Healthineers
- Stryker (3)
- IPG Health (3)
- Genewiz (4)
- Merck (6)
- Wiley Publishing (2)
- Bristol-Myers Squibb (9)
- Novartis (4)
- GlaxoSmithKline (3)
- Regeneron (4)
- Eli Lilly (3)
- Celgene (2)
- Janssen (3)
- Commercial Center for Innv Tech (2)
- Inst for Life Sci Entrepreneurship (2)
- Enterprise Development Center
- Sanofi Aventis
- Covance
- Kashiv
- Hovione
- NJ Dept. of Health (3)
- Ferring Pharmaceutical
- Colgate-Palmolive (2)
- Envigo
- Ethicon
- J&J Consumer
- Bayer (2)
- PTC Therapeutics
- Nanion Technologies



Representative Workshops



- Navigating Career Transitions
- Primer in Drug Discovery through Pre-Clinical Development



- Agile Project Management and Microsoft Project



- Python and Genomics Data Analysis by Data Carpentry
- Self assessments (Clifton Strengths)



- Targeted Resumes



- Value Proposition and LinkedIn Profiles
- Finding and applying for an internship



- Emotional Intelligence and influencing others
- Job search using staffing agencies

iJOBS Professional Development Workshops for Academia

- Designing an Effective Chalk Talk
- Mastering the Art of Scholarly Publishing
- The Do's and Don'ts of Effective Figure Design
- Top Design Tips for Better Graphical Abstracts
- Manuscript Writing Workshop
- Top Tips for Better Posters
- Top Tips for Depicting Biological Pathways
- Grant writing workshops
- Mentoring undergrads in research

Practice Interviews and Resume Reviews

- Merck
- Bristol Myers Squibb
- J&J
- Novartis



Behavioral based interview questions with PhD level employees to practice STAR responses and network

Networking Events

- All career panels, site visits and workshops have networking component
- Coordinate with professional societies: BioPharma Networking Group, Sino American Pharmaceutical Association, American Association of Pharmaceutical Scientists, and
- Rutgers and iJOBS alumni



iJOBS Partnerships On and Off Campus



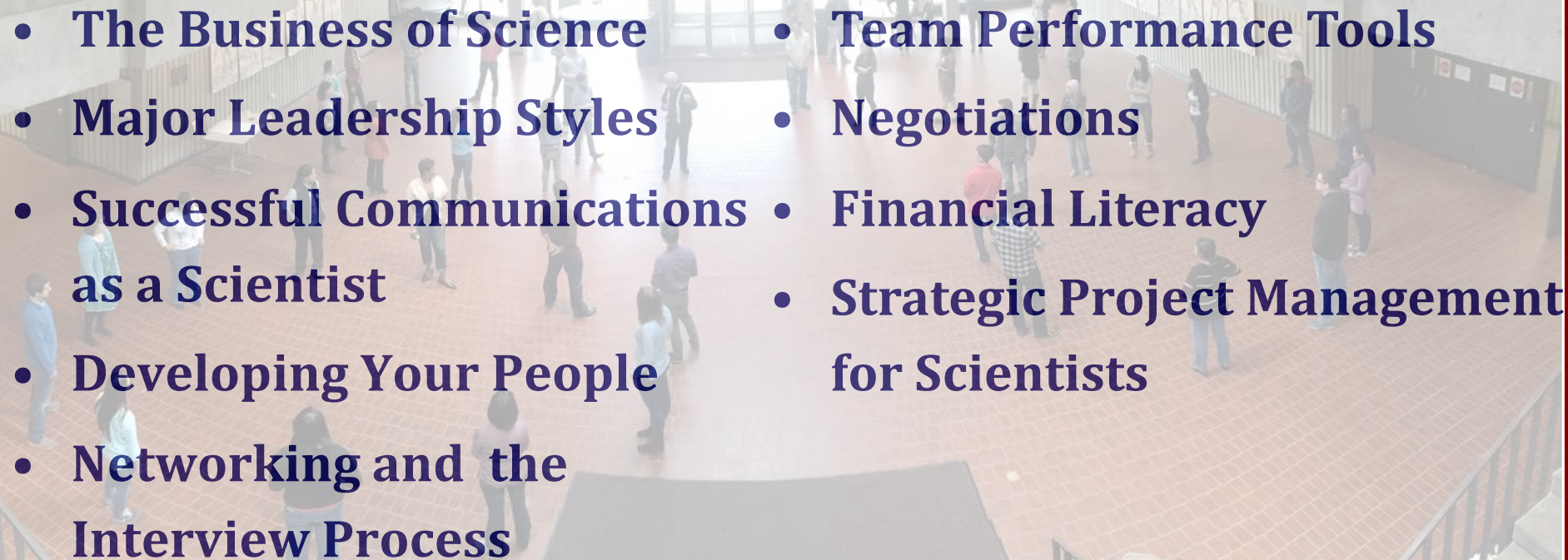
- Eagleton Institute for Science and Politics
- Erdos Institute - Invitations to Industry
- I-CORPS at Rutgers
- What Can You Be with a PhD at NYU
- Nucleate - GRO Biopharma Conference with NY Schools
- Regeneron Science to Medicine Forum
- From Science to Pharma MSL Preparation
- BioNJ
- Association for Women in Science
- Biogen Drug Development Conference
- Skills embedded into curriculum (communications, computational)

SciPhD: Leadership and Business Skills for Scientists

Provided by Human Workflows, LLC

Every Jan/Feb since 2015 - 35 hours

Will be ALL in person for 2024: January 10th (1-5pm), 11th (9am-5pm) and 12th (9am-5pm)

- 
- 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

Phase 2



iJOBS Program Registration

Phase 1

- iJOBS programming open to all pre and post-doctorates as well as recent alumni.
- Some events have limited capacity but put your name on the wait list

Phase 2

- Graduate students should have completed propositional qualifying exam. Postdocs are eligible at any time.
- Trainee application approval based upon Phase 1 participation (12 hours), letter of intent, letter of recommendation. PI approval for participation is required with application.
- Applications open every April and program starts in September for 1 year

Representative Career Track Skill Classes

Drug Development from
Concept to Market

From Science to Pharma
Medical Science Liaison
Training

One 40-Hour Class

Communicating Science

Technology Transfer

Principles of Finance
and Accounting

Fundamentals of
Regulatory Affairs

Business of Science:
Molecules to Medicine

Project Management

Python Methodologies

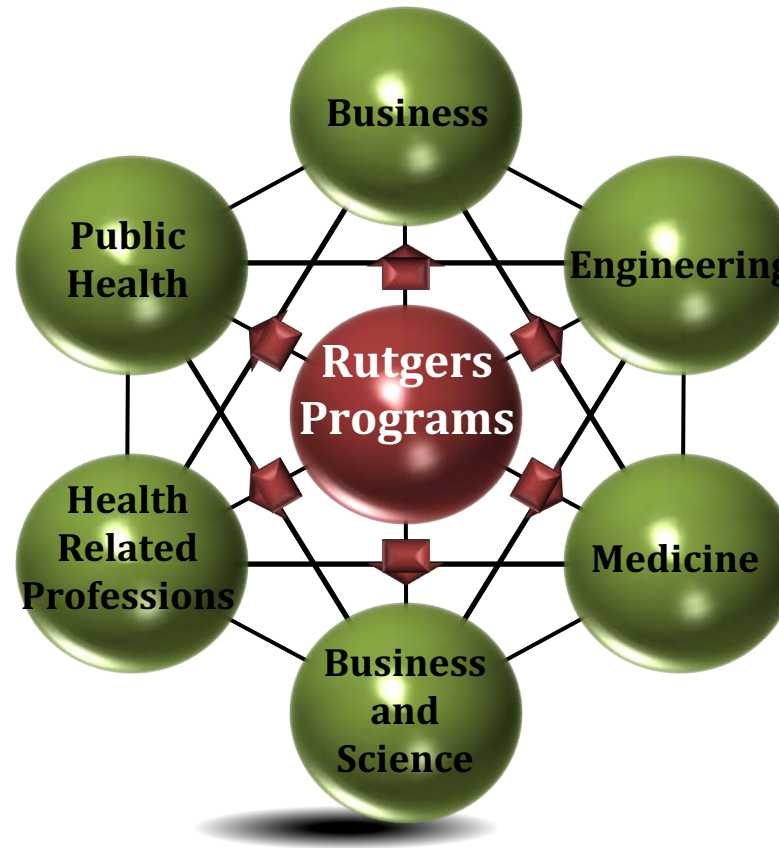
Pharma Product
Management

Practical Aspects of
Clinical Trial Design

Organizational Behavior

Fundamentals of
Regulatory Affairs

Innovation and
Entrepreneurship



Professional Shadowing and Mentoring



- Each trainee is matched to a professional for a shadowing opportunity relevant to their chosen track with industrial, institutional or governmental partners. 72 hours over a whole semester.
- Each trainee is assigned a professional mentor and uses the Individual Development Plan (IDP) as a framework for growth.

Phase 3



Phase 3
IMPLEMENT

Job Search Preparation

- One on one mentoring sessions with Juliet Chin Hart to refine resume and cover letter
- LinkedIn Counseling with Penny Pearl at 2Actify
- Strategize on job search approach
- Prepare for interviews



Ice Breaker

- Share what motivates you to do your current project/job/position?
- Finish this sentence "The thing that I love best about my current position is..."





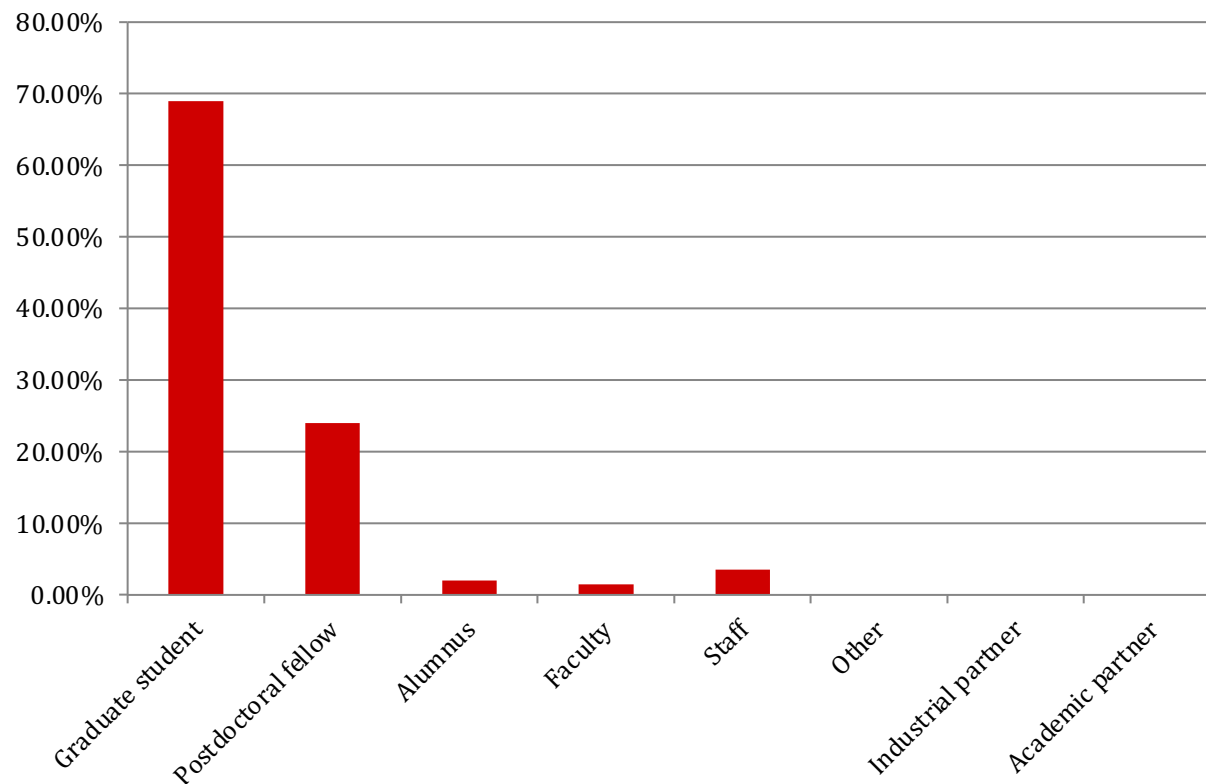
Dissemination, Evaluation and Outcomes

iJOBS Cohort Participation

From Sept 2020- Oct 2023, we have hosted 133 events with over 2,700 attendees

Trainee Academic Standing n = 1388

What best describes your position?

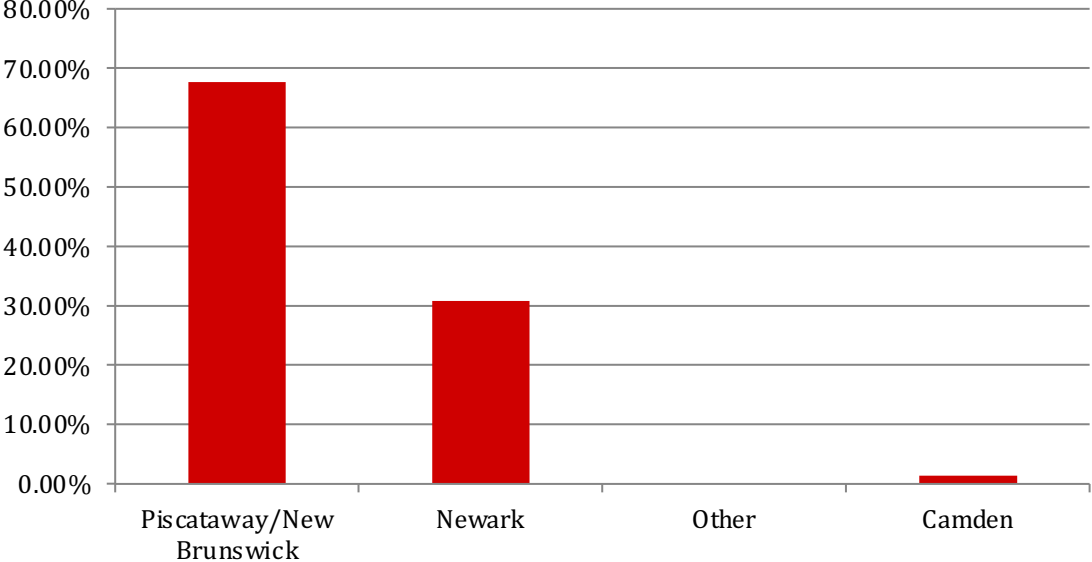


Total pool
68% predoc
32% postdoc

Participation by Campus Location

Predoctoral Students

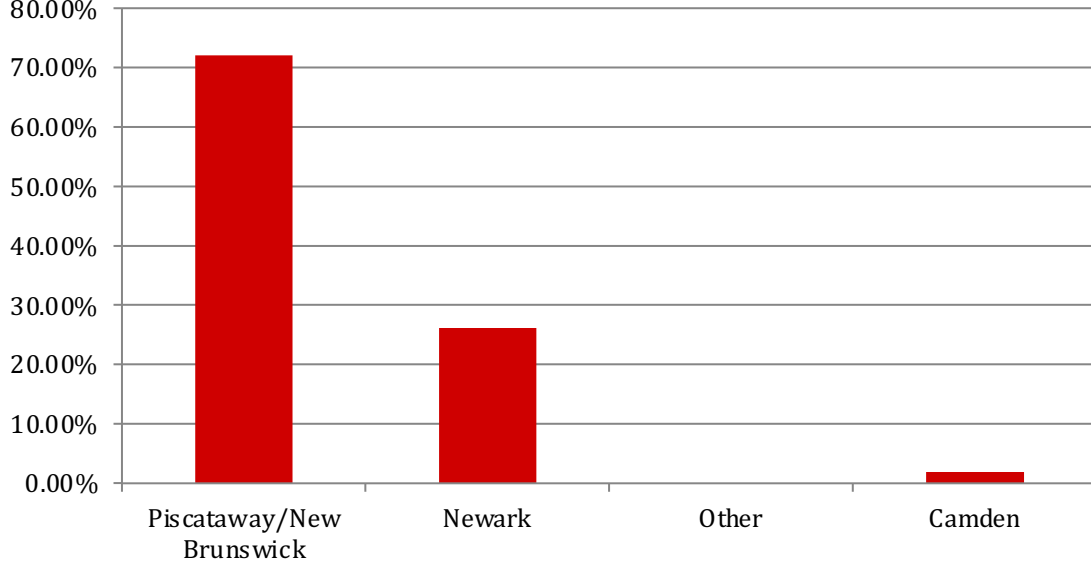
Campus location



Total pool
New Brunswick/Pisc 68%
Newark 31%
Camden 1%

Postdoctoral Fellows

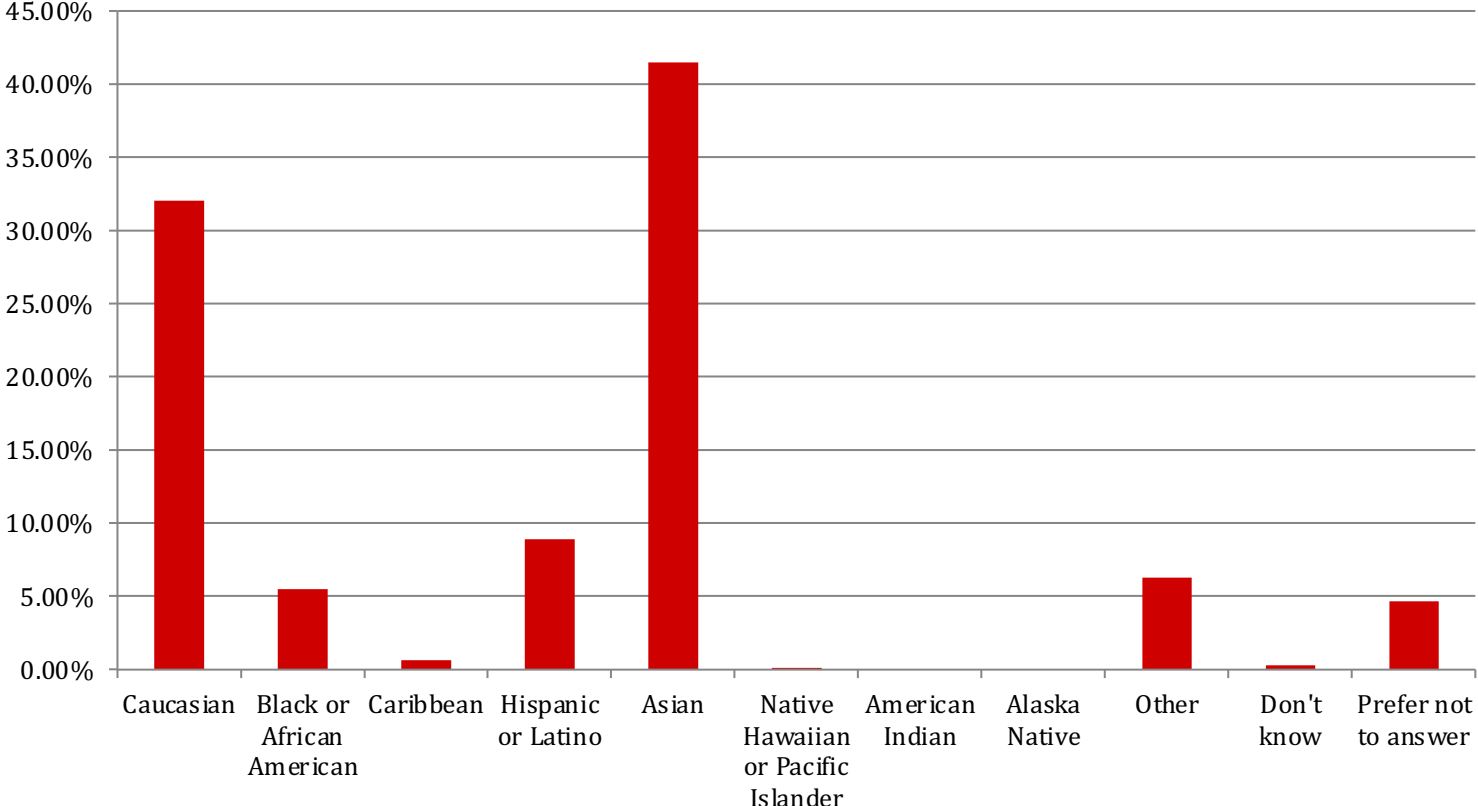
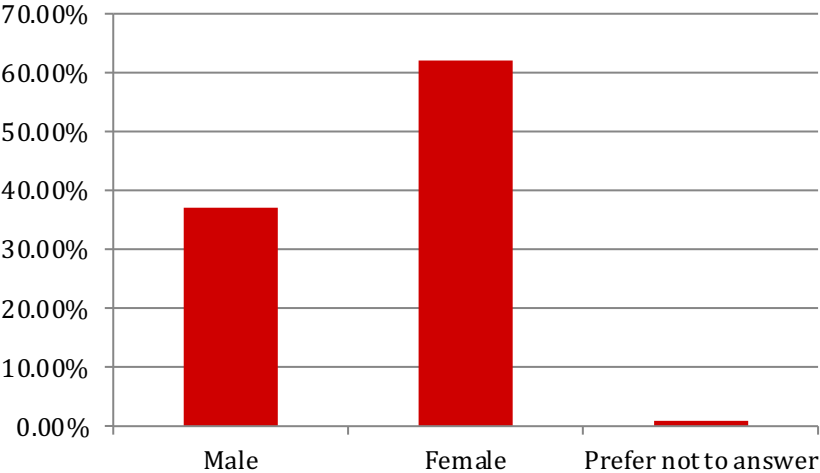
Campus location



Gender and Ethnicity Data

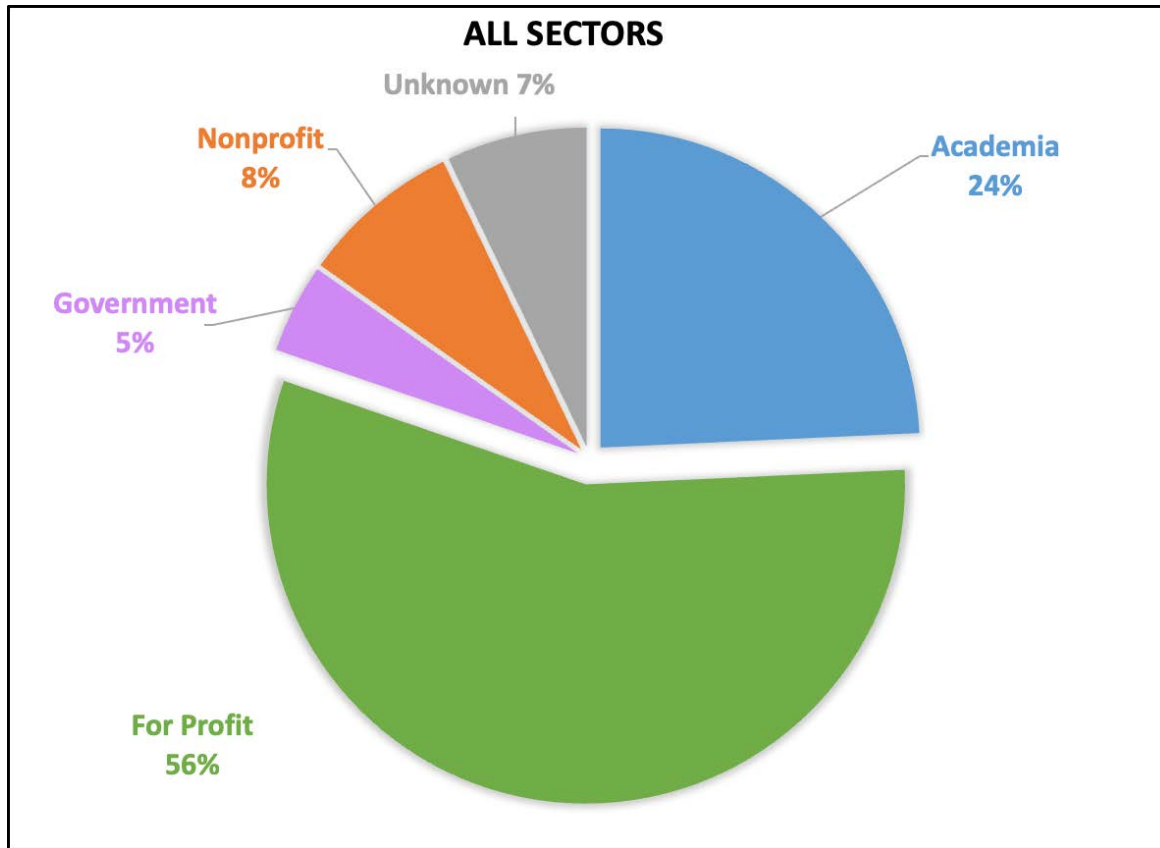
Please describe your race/ethnicity.

Gender

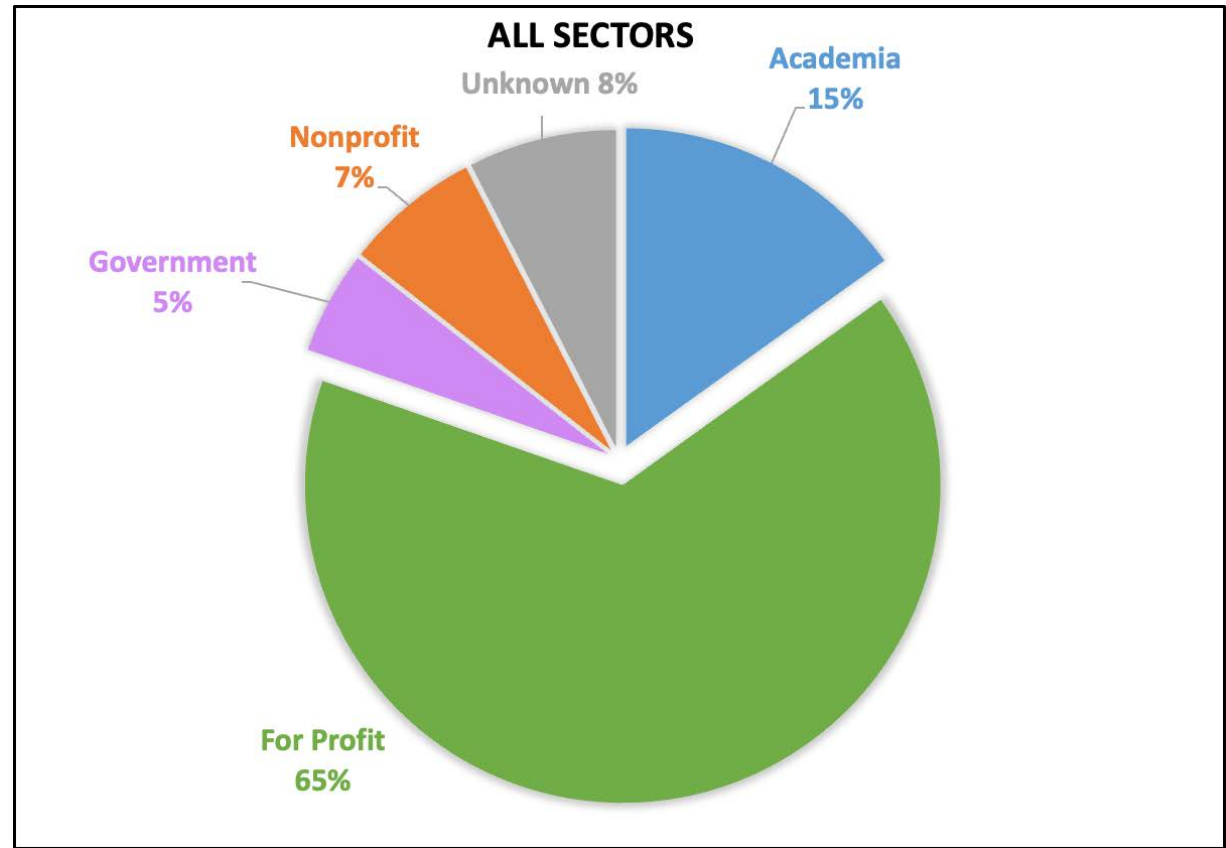


Positions of SciPhD Participants (n = 310)

First Position

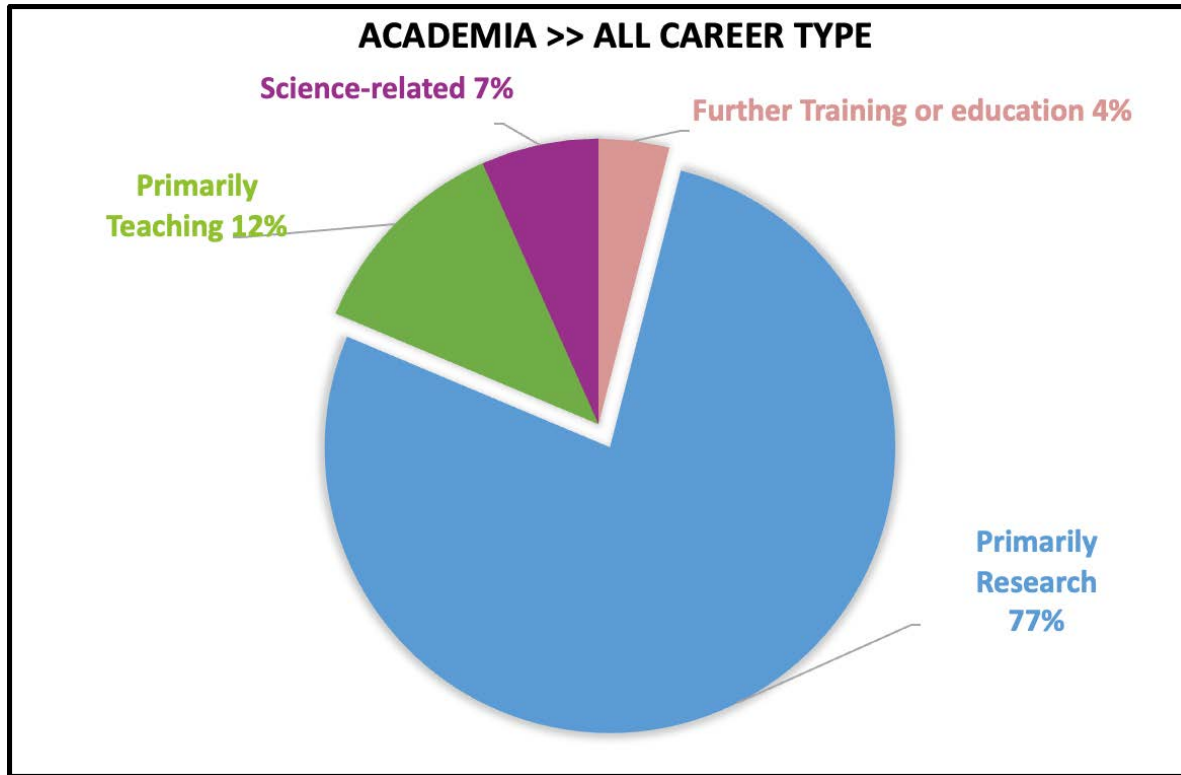


Current Position

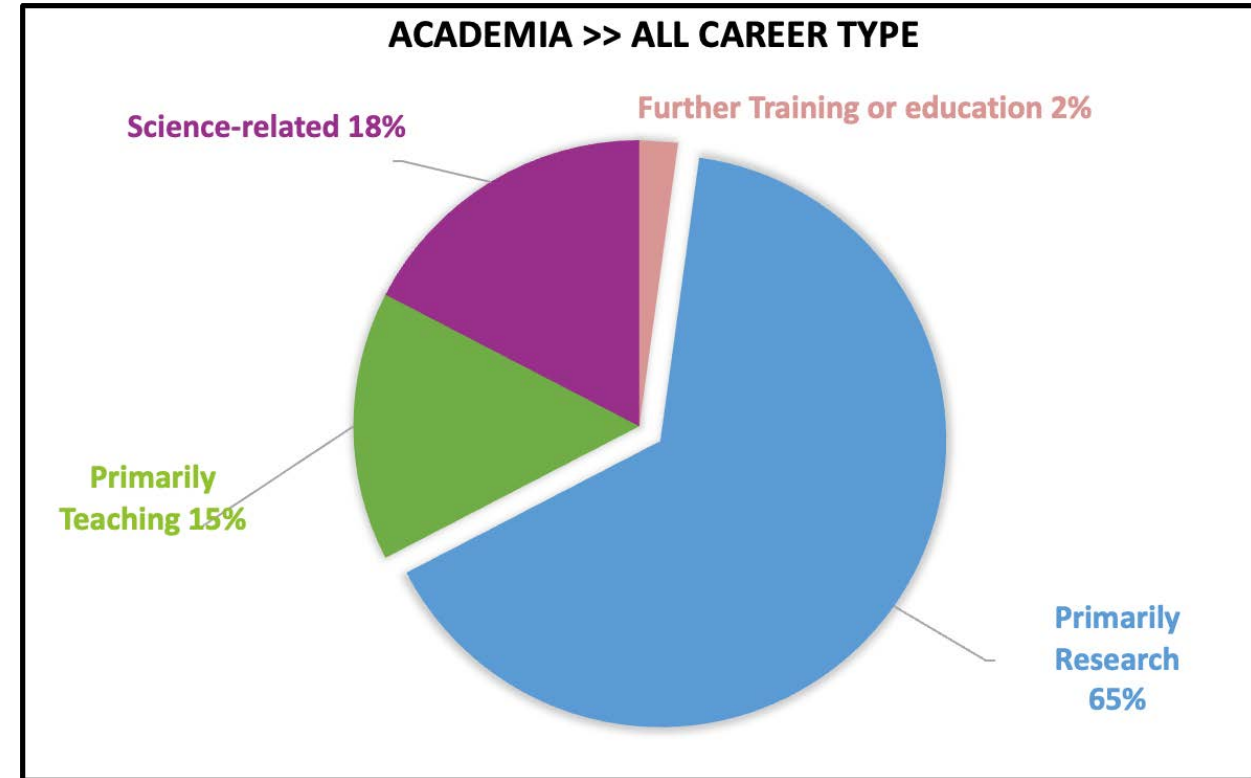


Academia - All Career Types

First Position



Current Position

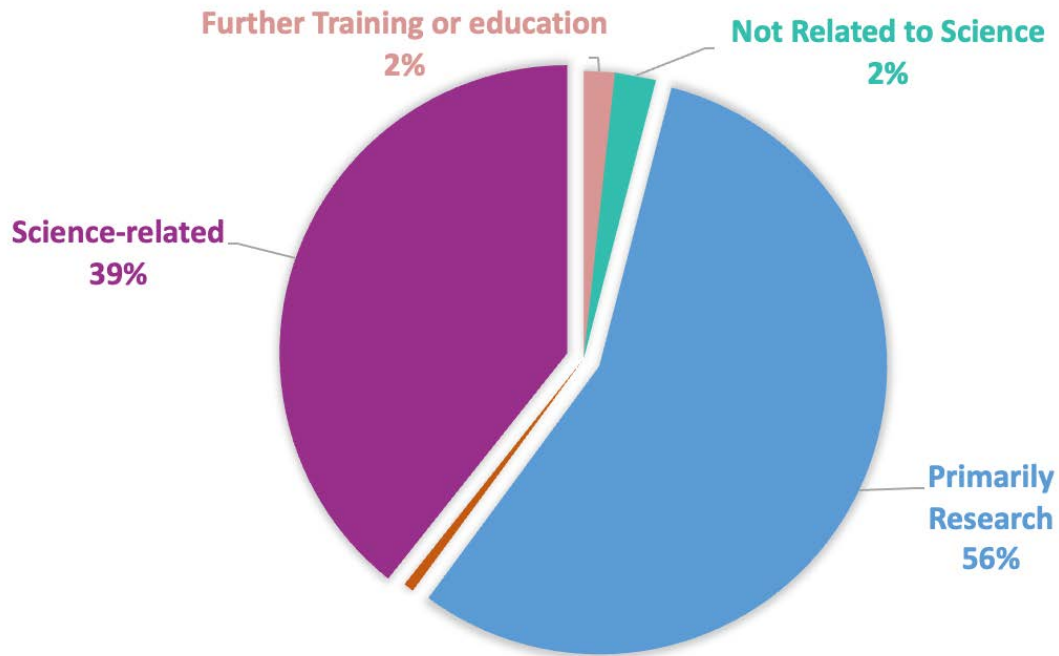


For-Profit – Research vs Science-Related

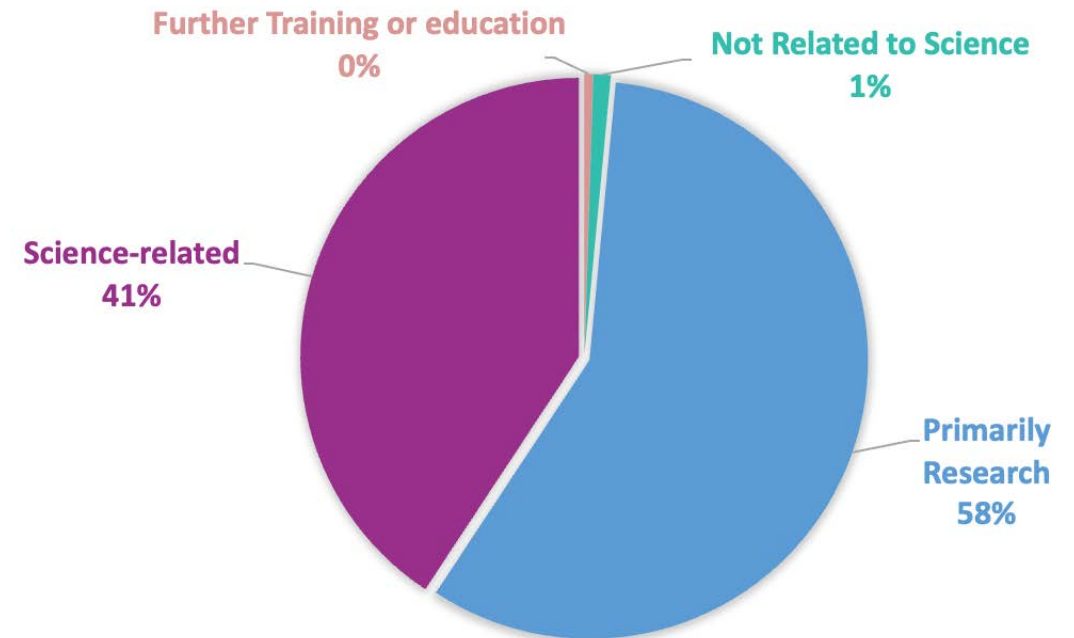
First Position

Current Position

FOR PROFIT >> ALL CAREER TYPES

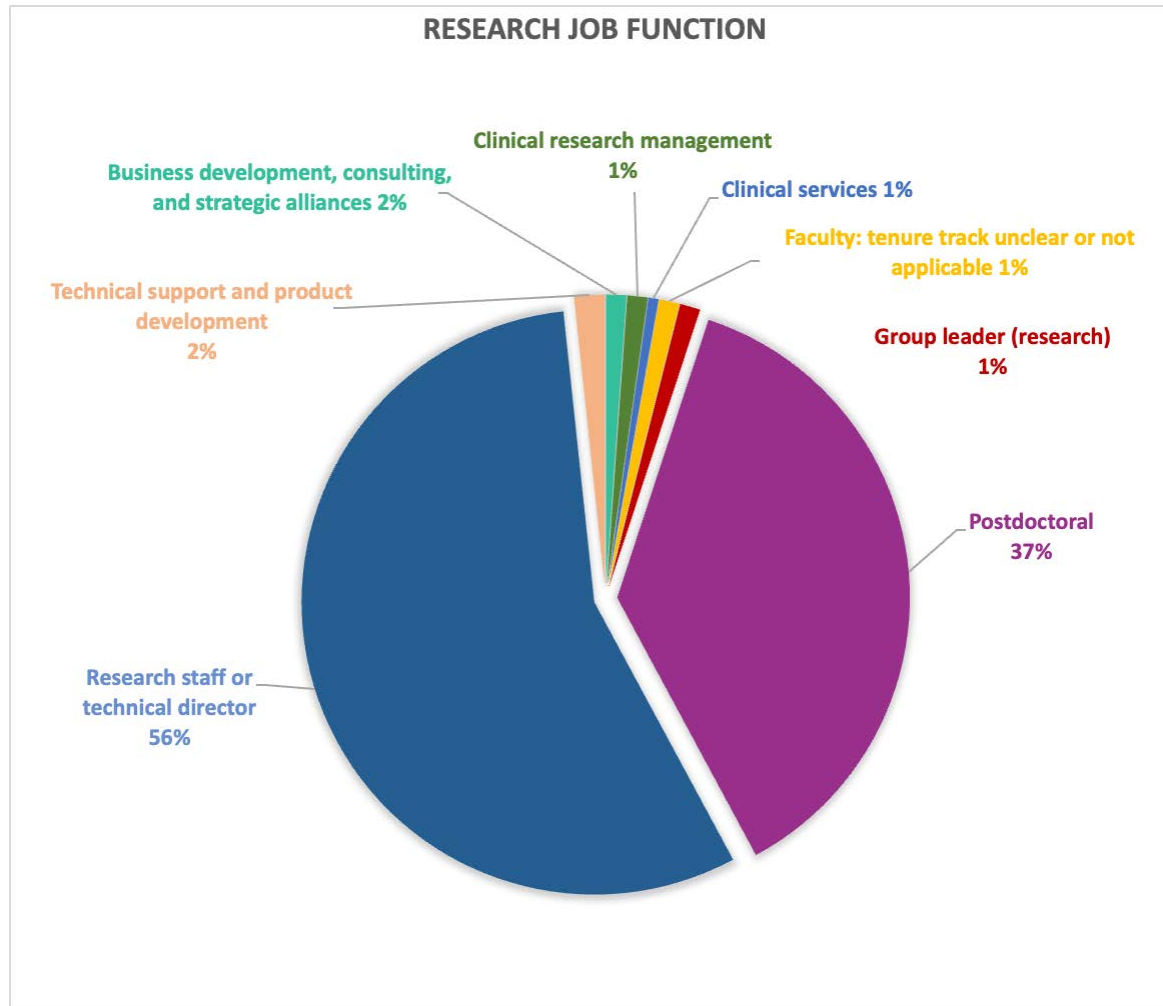


FOR PROFIT >> ALL CAREER TYPES

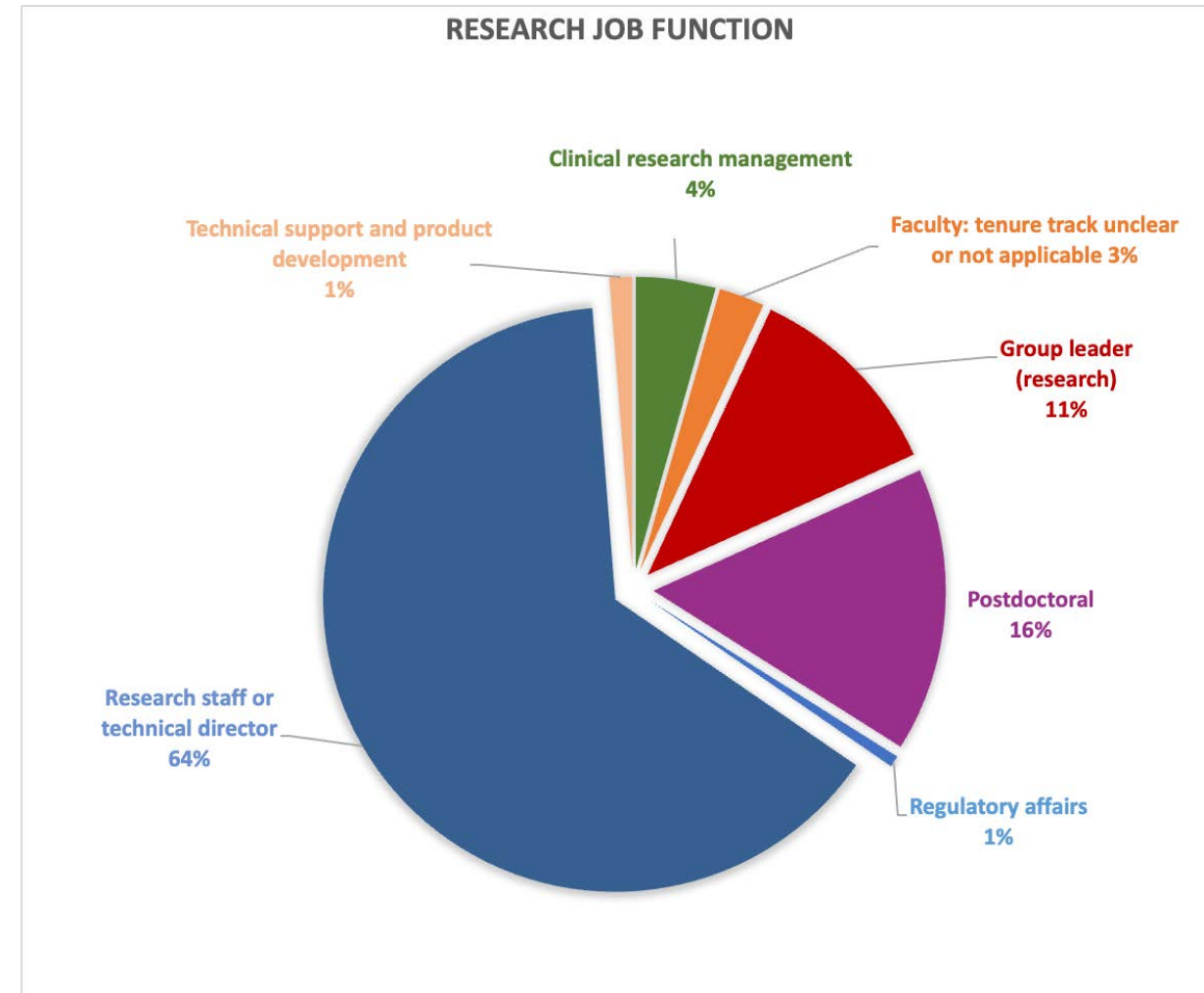


Research Job Functions

First Position



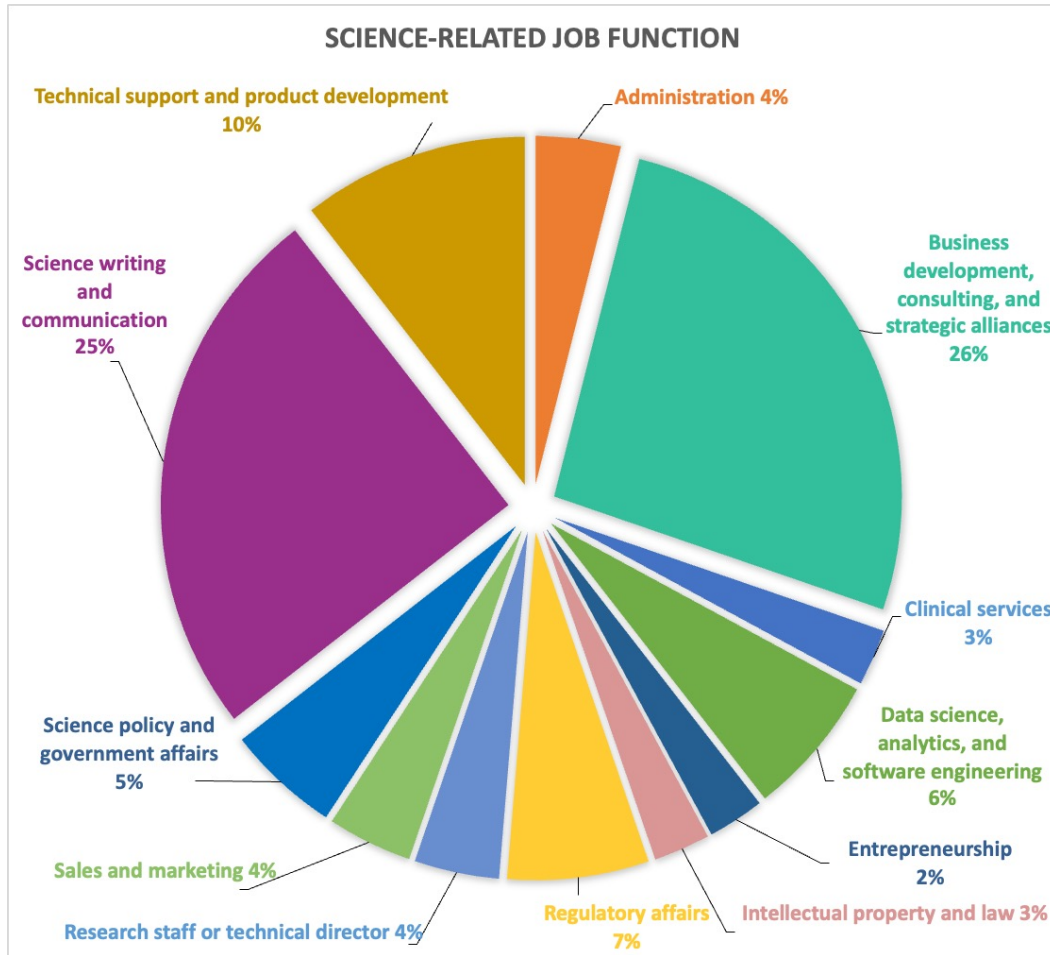
Current Position



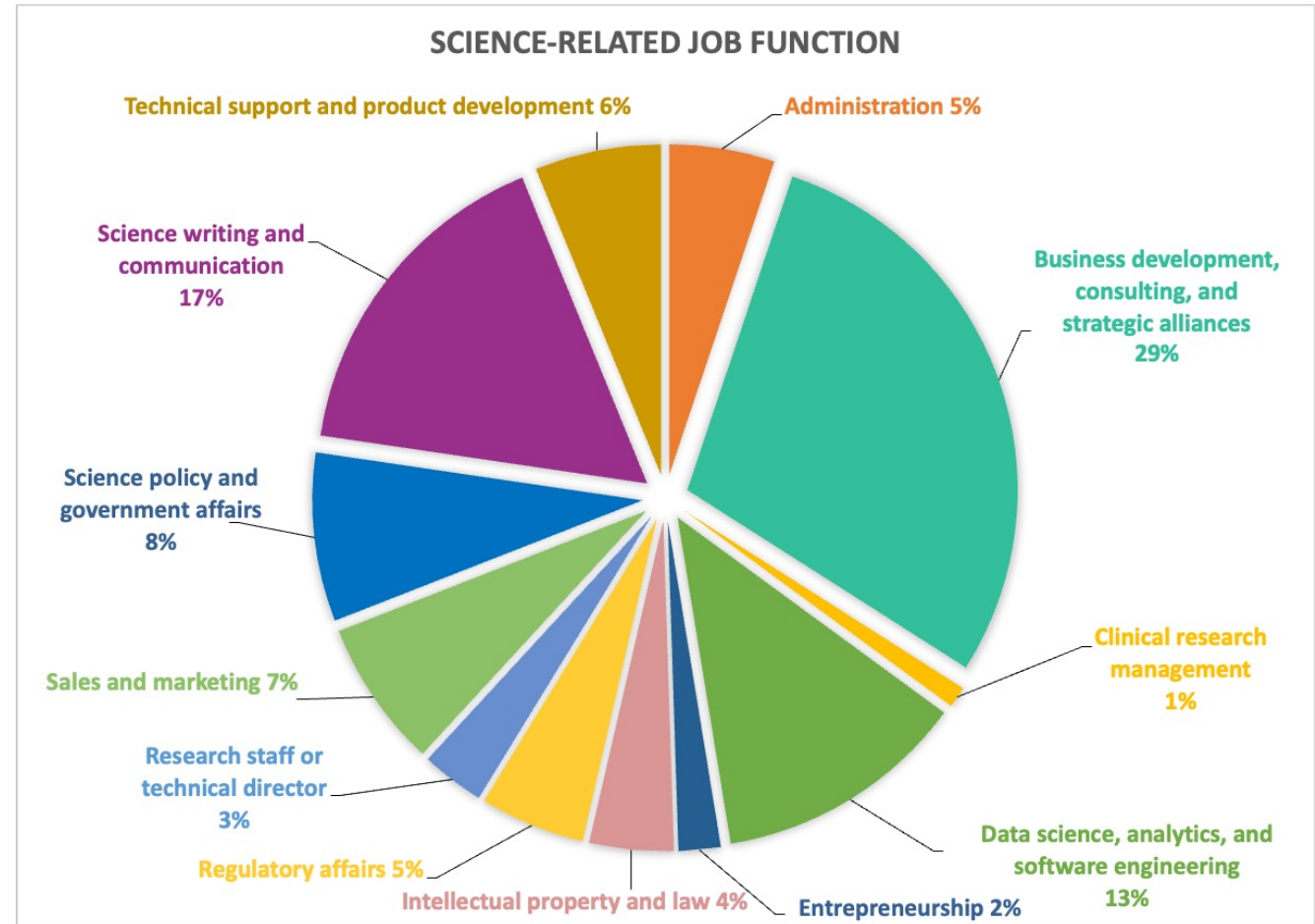
Data analyzed by Janell Mason and Tracy Scott

Science-Related Job Functions

First Position



Current Position



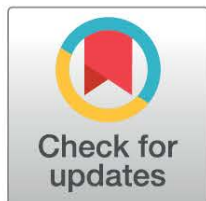
Data analyzed by Janell Mason and Tracy Scott

META-RESEARCH ARTICLE

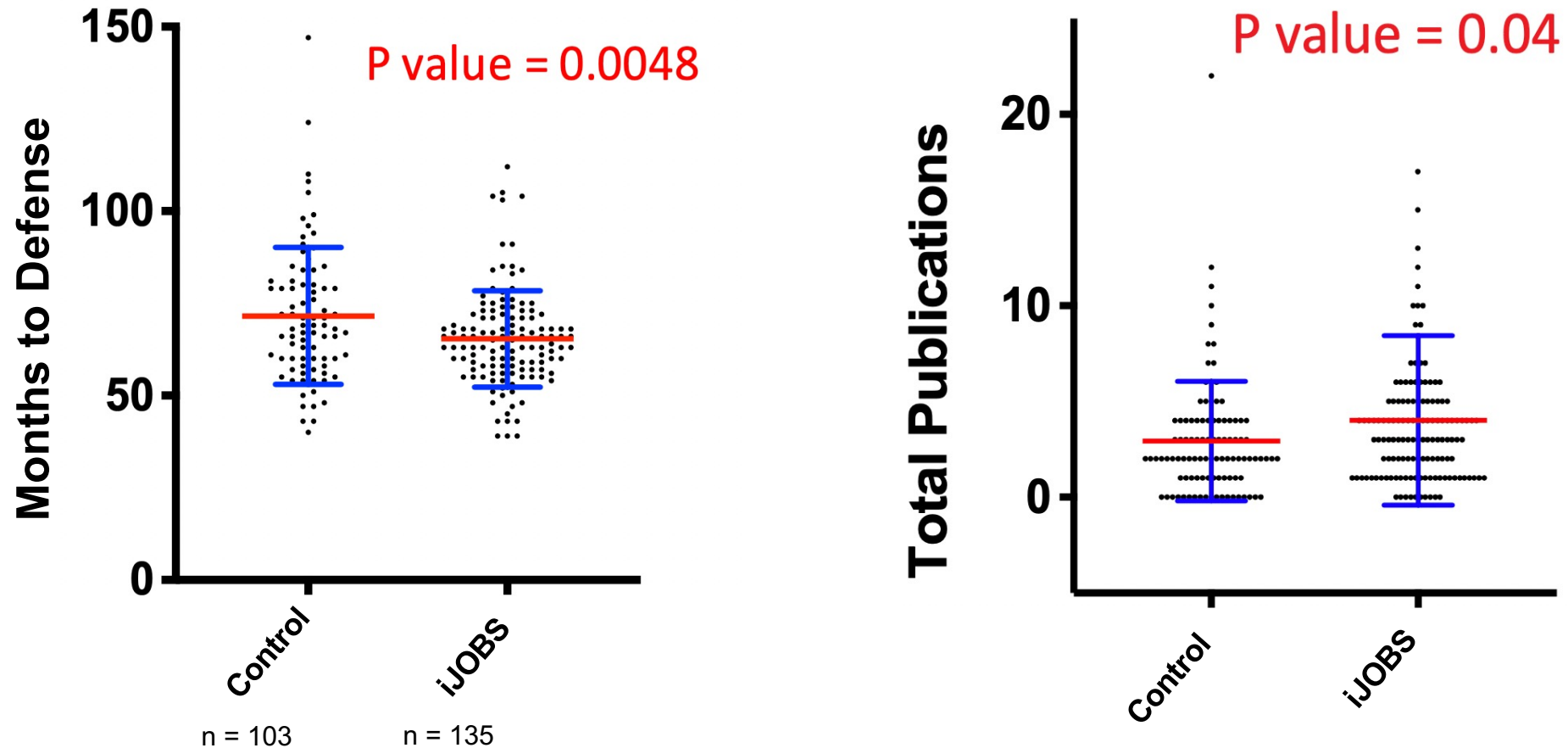
A cross-institutional analysis of the effects of broadening trainee professional development on research productivity

Patrick D. Brandt^{1*}, Susi Sturzenegger Varvayanis², Tracey Baas^{3^{aa}}, Amanda F. Bolgioni^{4^{ab}}, Janet Alder⁵, Kimberly A. Petrie⁶, Isabel Dominguez⁴, Abigail M. Brown⁶, C. Abigail Stayart⁷, Harinder Singh⁸, Audra Van Wart^{9^{ac}}, Christine S. Chow¹⁰, Ambika Mathur^{10^{aa}}, Barbara M. Schreiber⁴, David A. Fruman⁸, Brent Bowden⁹, Christopher A. Wiesen¹, Yvonne M. Golightly¹, Chris E. Holmquist¹, Daniel Arneman¹, Joshua D. Hall¹, Linda E. Hyman^{4^{ad}}, Kathleen L. Gould⁶, Roger Chalkley⁶, Patrick J. Brenwald^{1^{ce}*}, Rebekah L. Layton^{1^{ce}*}

1 University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States of America, **2** Cornell University, Ithaca, New York, United States of America, **3** University of Rochester, Rochester, New York, United States of America, **4** Boston University, Boston, Massachusetts, United States of America, **5** Rutgers University, New Brunswick, New Jersey, United States of America, **6** Vanderbilt University, Nashville, Tennessee, United States of America, **7** University of Chicago, Chicago, Illinois, United States of America, **8** University of California-Irvine, Irvine, California, United States of America, **9** Virginia Polytechnic Institute and State University, Blacksburg, Virginia, United States of America, **10** Wayne State University, Detroit, Michigan, United States of America



iJOBS Participants Have Decreased Time to Defense and Increased Total Publications



Measuring Effects of Trainee Professional Development on Research Productivity: A Cross-institutional Meta-analysis, Brandt et al., PLOS Biology, 2021

Applying Experiential Learning to Career Development Training for Biomedical Graduate Students and Postdocs: Perspectives on Program Development and Design

Audra Van Wart,^{†‡§} Theresa C. O'Brien,^{‡§||*} Susi Varvayanis,[†] Janet Alder,[#] Jennifer Greenier,[@] Rebekah L. Layton,^{} C. Abigail Stayart,^{††} Inge Wefes,^{##} and Ashley E. Brady^{§§}**

[†]Fralin Biomedical Research Institute and Virginia Tech Carilion School of Medicine, Virginia Tech, Roanoke, VA 24016; ^{||}University of California San Francisco, San Francisco, CA 94143; [¶]Cornell University, Ithaca, NY 14853; [#]Rutgers University, Rutgers, NJ 08854; [@]University of California Davis, Davis, CA 95616; ^{**}University of North Carolina, Chapel Hill, Chapel Hill, NC 27599; ^{††}University of Chicago, Chicago, IL 60618; ^{##}University of Colorado Denver–Anschutz Medical Campus, Aurora, CO 80045; ^{§§}Vanderbilt University School of Medicine, Nashville, TN 37232

Using stakeholder insights to enhance engagement in PhD professional development

Deepti Ramadoss¹ ^{*}, Amanda F. Bolgioni² , Rebekah L. Layton³ , Janet Alder⁴, Natalie Lundsteen⁵ , C. Abigail Stayart⁶ , Jodi B. Yellin⁷, Conrad L. Smart⁸, Susi S. Varvayanis⁹ 

1 School of Medicine Office of Graduate Studies, University of Pittsburgh, Pittsburgh, PA, United States of America, **2** Department of Medical Sciences & Education, Boston University, Boston, MA, United States of America, **3** Office of Graduate Education, University of North Carolina, Chapel Hill, NC, United States of America, **4** Department of Neuroscience and Cell Biology and School of Graduate Studies, Rutgers University, Piscataway, NJ, United States of America, **5** Graduate School of Biomedical Sciences, UT Southwestern Medical Center, Dallas, TX, United States of America, **6** Office of Graduate and Postdoctoral Affairs, University of Chicago, Chicago, IL, United States of America, **7** Association of American Medical Colleges, Washington, D.C., United States of America, **8** Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, NY, United States of America, **9** Graduate School, Cornell University, Ithaca, NY, United States of America

Peer Communication and Benchmarking



- **Susan Engelhardt**
- Provides an instructional guide for institutions wanting to create or supplement their career and professional development offerings
- Contains perspectives from administrators from the 17 Broadening Experiences in Scientific Training (BEST) institutions
- Addresses what graduate students and postdoctoral populations can implement now to help broaden career outcomes
www.elsevier.com/books/BEST/9780128207598

Editors: Lorena Infante Lara, Laura Daniel, Roger Chalkley

Paperback ISBN: 9780128207598

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iJOBS Benefits

Rutgers University

- Recruiting of graduate students
- Takes burden off of faculty for advising towards careers with which they are not familiar
- Student mental health, motivation, productivity
- NIH Training grants require career development component
- Increased interaction between Rutgers and industry

Industry Partners

- Access to highly trained local talent pipeline
- Ability to influence curriculum
- Vet potential hires through shadowing/externship
- Promotion of company brand
- Interactions with academia
- Community and education outreach/service

**Teaches leadership, business, teamwork,
and communication skills necessary for
ALL careers.**

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Congratulations to Our Current Phase 3 Trainees!



- Denise Robles
- Shawn Rumrill
- Danielle Millick
- Jaeyong Jung
- Luka Turkalj
- Alketa Stefa
- Danielle Kozlosky

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THE STATE UNIVERSITY
OF NEW JERSEY

Attestation of Completion

is hereby granted to

Trainee Name

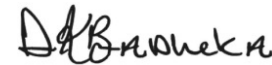
to certify that he/she has completed to satisfaction

iJOBS

interdisciplinary Job Opportunities for Biomedical Scientists

iJOBS training involves exposure to academic and non-academic career options with a PhD in life sciences as well as training in leadership, business, and communication skills. Practical experience includes company externships, case studies and coursework in the area of interest.

Granted: October 25, 2023



iJOBS Co-directors:
Janet Alder, Doreen Badheka

Denise Robles - iJOBS Phase II Experience

The Class

Project Management for the Scientific and Technical Practitioner (16:137:601)



- Professor Eddy Vertil, MPM, PMP
- Worked closely with current MBS students and full-time PMs
- Provided me with a comprehensive overview of important PM techniques, terminology, and necessary skills
- Asynchronous
- Many team projects throughout the semester – challenging, but provided a real-world example of working with and managing other team members, which is a critical PM skill



The Shadowing

Project Manager Claudia Campbell-Matland, PMP, at NovoPedics Inc.



- Mentor: Claudia Campbell-Matland
- Roles: Program Manager & Acting Director of Quality
- Gained insight into the many ways a great PM can positively influence her team and keep things on track
- Developed a more in-depth understanding of PM principles, industry interactions, and skills needed to be an effective team leader
- Highlights: Gantt charts, FDA & stakeholder chats, biscottis



SHAWN RUMRILL - CHEMISTRY AND CHEMICAL BIOLOGY

iJOBS PHASE 3 TRAINEE: PROJECT MANAGEMENT



Course

Python Methodologies for Data Science

- Well structured
- Python basics
- Applied projects to my own research



Shadowing

Matinas Biopharma

- Jenel Cobb, PhD
 - Project Manager
- LNC platform
- Clinical trials
- Funding agency applications
 - BARDA, ARPA-H



Mentoring

Jeffrey R. Harris, PhD - Genmab

- Postdoc/career discussions
- Networking advice
- Biotech symposium speaker



Added Benefits

- 2Actify: LinkedIn
- Hart and Chin resume/career consulting
- Vast network
- Model program for RU

Danielle Millick – iJOBS Phase II Experience

PhD Candidate, Microbiology & Molecular Genetics

iJOBS Phase II: Class

Practical Aspects of **Clinical Trial Design & Conduct**

- Gained insight into how clinical trials are developed and conducted
- Work on writing a complete clinical trial protocol throughout the semester
- Feedback from instructor regularly & work on assignments with team
- Learned the language & improved my ability to evaluate clinical studies (goals, strengths, limitations, etc.)

- ✓ **Confident in ability to critically evaluate scientific data / clinical studies**
- ✓ **Strengthen networking & interpersonal skills**
- ✓ **Networking opportunities – across all areas of industry**

iJOBS Phase II: Shadowing

Haleon **Medical Affairs** with Richard Petruschke

- Worked with two medical affairs departments – on-site bi-weekly
- Gathered background research for a medical advisory board & interviews with key opinion leaders
- Summarized key insights from KOLs and presented findings & business opportunities to broader Haleon team
- Met with several Haleon employees in different sectors to discuss their career paths

iJOBS Phase 2: Jaeyong Jung

- **Coursework: Practical Aspects of Clinical Trial Design and Conduct**
 - Group effort to develop a mock clinical trial protocol/eCRF using RedCAP
- **Mentor: John Sun, PhD**
 - 1:1 virtual and in-person meetings to develop iJOBS IDP, as well as for general career development and strategies.
What does it mean to be a leader vs manager?
- **Shadowing Professional: Mike Patrizii, PhD**
 - Bristol-Myers Squibb, Clinical Trial Transparency (CTT) Registration Team
 - Shadowed Mike and other professionals for 80+ hours
 - Learned more about the transparency / compliance that pharmas must abide
 - Exposed to different departments and the collaborative efforts that goes into clinical trial development and maintenance



iJOBS phase II experience

Course:

Drug Discovery Through Preclinical Development

- fundamentals of drug discovery process
- working in teams with colleagues with diverse backgrounds
- feedback on assignments

Shadowing:

Dr. Maryam Alapa



Bristol Myers Squibb

- bench work
- data presentation
- meetings with PI
- job interview
- in-house lecture
- networking

Mentoring:

Dr. Robert Connacher

- help with everything related to transitioning to the industry

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Career Cluster Meetings and Networking

Questions to prompt discussion:

- 1) What sparked your interest in this career path?
- 2) If I could do take one concrete action prior to my job search to help me get into this field specifically, what would that be (e.g. practice case studies, get teaching experience, get a certification, build a writing portfolio, learn a specific lab technique that is in high demand)?
- 3) What do you think is one challenge or negative aspect of this career path?
- 4) What personal attributes and transferrable skills are most essential for success in this career path?