



RUTGERS UNIVERSITY
School of Graduate Studies

Why You Should Come to Rutgers for Grad School

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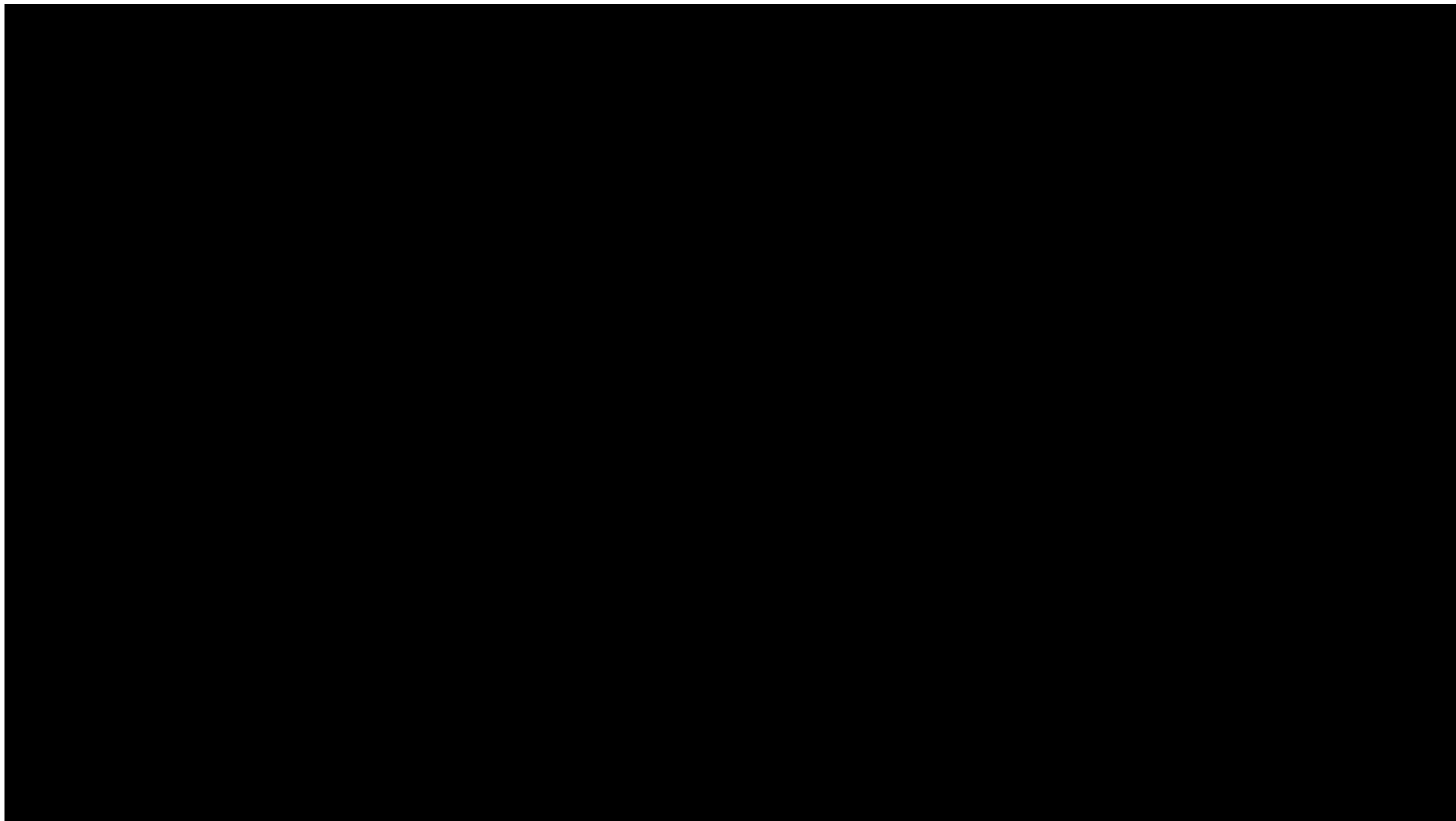
October 2024



Overview of Rutgers

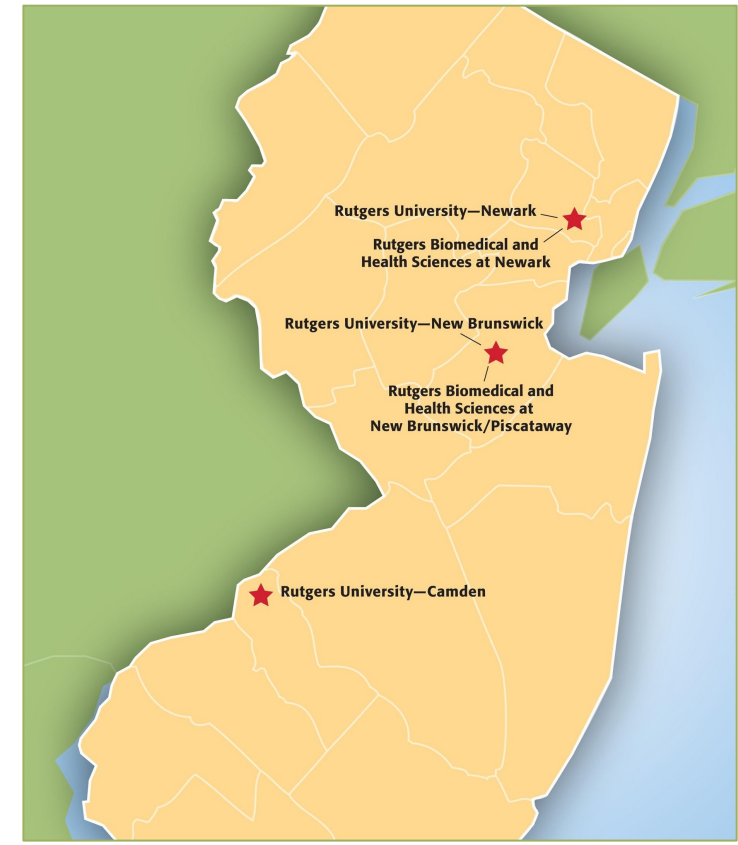


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Where are we?





Rutgers Facts



- Member of Association of American Universities and Big10 Academic Alliance
- Ranked 61st of 2000 to world universities 2024 by the Center for World University Rankings
- Rutgers brings more federal research dollars to New Jersey than all other New Jersey colleges and universities combined
- Top 6% of American universities in science and engineering research and development expenditures
- \$969 million in research grants and sponsored programs received in annually
- 470 clinical trials supported at any given time



University of Illinois
Indiana University
University of Iowa
University of Maryland
University of Michigan
Michigan State University
University of Minnesota
University of Nebraska-Lincoln
Northwestern University
Ohio State University
University of Oregon
Pennsylvania State University
Purdue University
Rutgers University-New Brunswick
University of California Los Angeles
University of Southern California
University of Washington
University of Wisconsin-Madison





Our faculty hold prestigious positions

Rutgers has more faculty in the National Academy of Sciences and the American Academy of Arts and Sciences than any other public peer school in the Northeast.

Paul Copeland



Ken Irvine



Eileen White



Bonnie Firestein



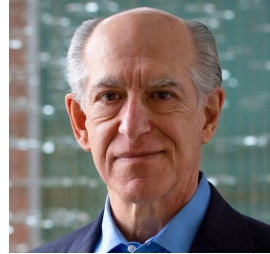
Richard Ebright



Tony Kong



Manny DiCicco-Bloom



Monica Driscoll



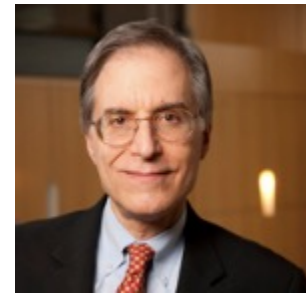
Masayori Inouye



Tara Matisse



Arnold Rabson



Chris Molloy



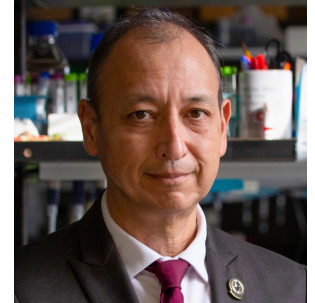
Renping Zhou



Monica Roth



Andy Singson



Suzie Chen



Martin Yarmush



Rutgers houses world-renowned resources

SAMPLED



- Largest DNA and cell repository in the world for the study of genetics and autism, mental health, drug abuse, alcoholism, diabetes, and digestive and kidney disease.
- Host to the Protein Data Bank, the single worldwide repository for 3D protein structures.
- A 550,000-square-foot, \$665 million project to bring scientists, doctors and patients together opening 2025

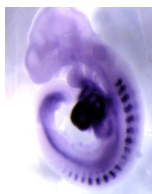


Graduate Programs

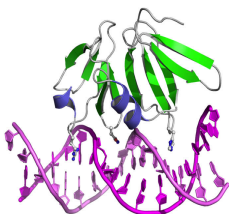


Biomedical Science PhD Programs in New Brunswick/Piscataway

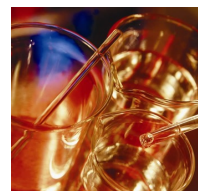
Molecular Biosciences Umbrella Program



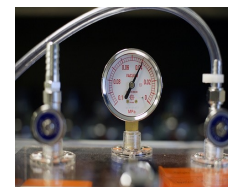
Cell and Developmental Biology



Biochemistry and Molecular Biology



Cellular and Molecular Pharmacology



Physiology and Integrative Biology



Molecular Genetics and Microbiology

Individual Graduate Programs



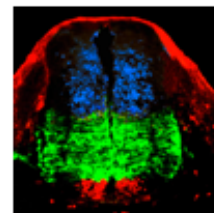
Biomedical Engineering



Exposure Science and Assessment



Toxicology



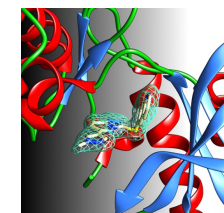
Neuroscience



Public Health



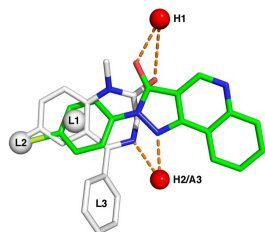
Nursing



Quantitative Biomedicine



Pharmaceutical Sciences



Medicinal Chemistry



Microbial Biology



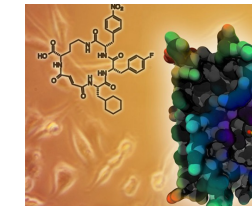
Endocrinology and Animal Biosciences



Nutritional Sciences



Chemical Biochemical Engineering



Chemistry and Chemical Biology

NB/Pisc Masters Programs

<https://grad.rutgers.edu/academics/graduate-programs/biomedical-and-health-sciences-all-degree-programs/masters-programs>

- Master of Biomedical Science for students applying to medical or dental school who need to improve their application
 - 30 credits, 1 year program if full time, anatomy, capstone project with faculty member, Accelerated Application to RWJMS if criteria is met
- Master of Science in Biomedical Science for those interested in research
 - 30 credits, 2 year program, thesis instead of capstone

MD/PhD program

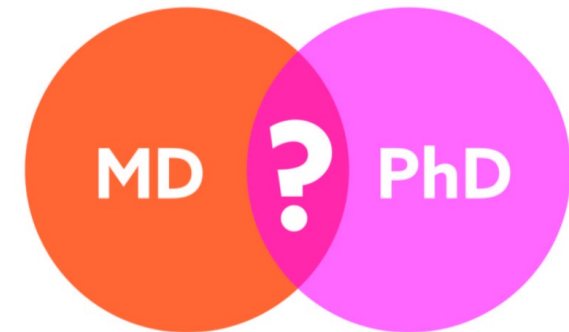
Students receive both a MD and PhD degree - Treat and Cure

Structured program that reduces time for both degrees

First 1.5 years of medical school

Followed by 3-4 years for PhD (multiple disciplines)

Ends with last 2.5 years of medical school



All medical school expenses are paid and the student also receives a stipend

Educational benefit: trained as a physician-scientist bringing medicine to science and science to medicine but only for students who are equally excited about medicine and research



MD/PhD Rutgers and Princeton Joint Program

Unique collaborative environment between a state university and an Ivy League institution

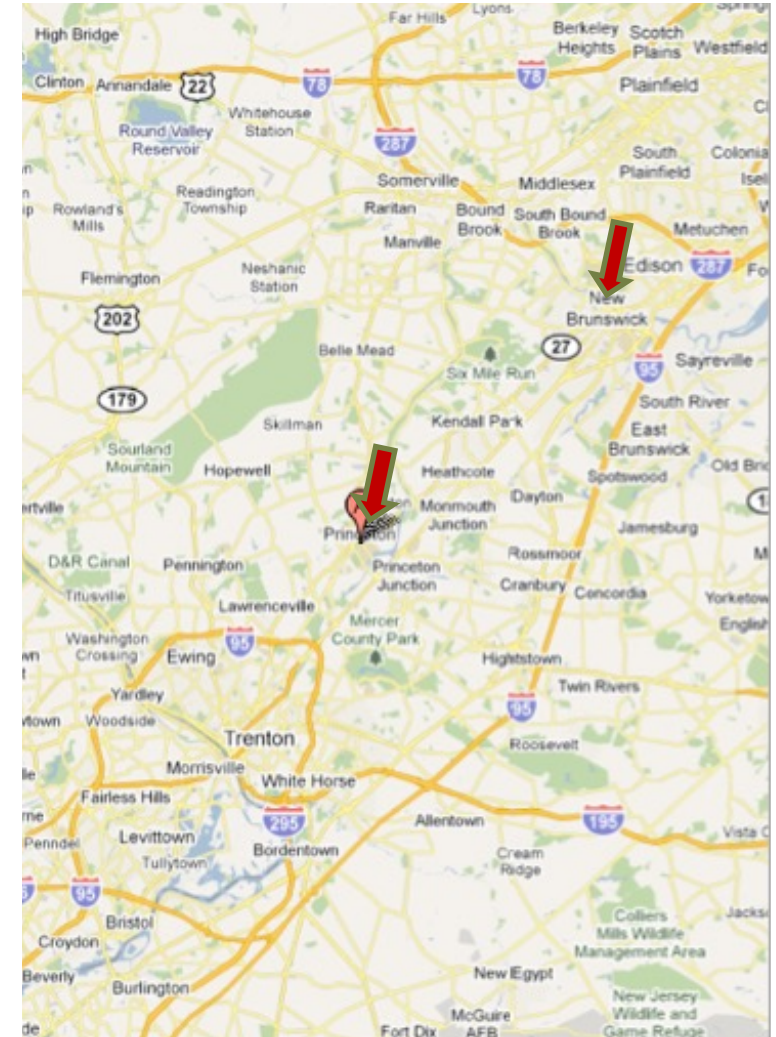
Rutgers: Leverage many resources of a large state university
>450 faculty to choose from

Princeton: one of the most prestigious schools in the world
Smaller without the post-graduate schools

Can pick a PhD that is not biology (e.g. anthropology, public health etc...)

Diversity (~50% women; 20% URM students)

~70% enter research track or research-intensive residencies
(UPenn, Columbia, Mt Sinai)

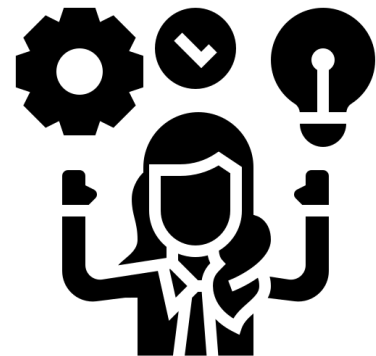




Graduate Training and Mentoring

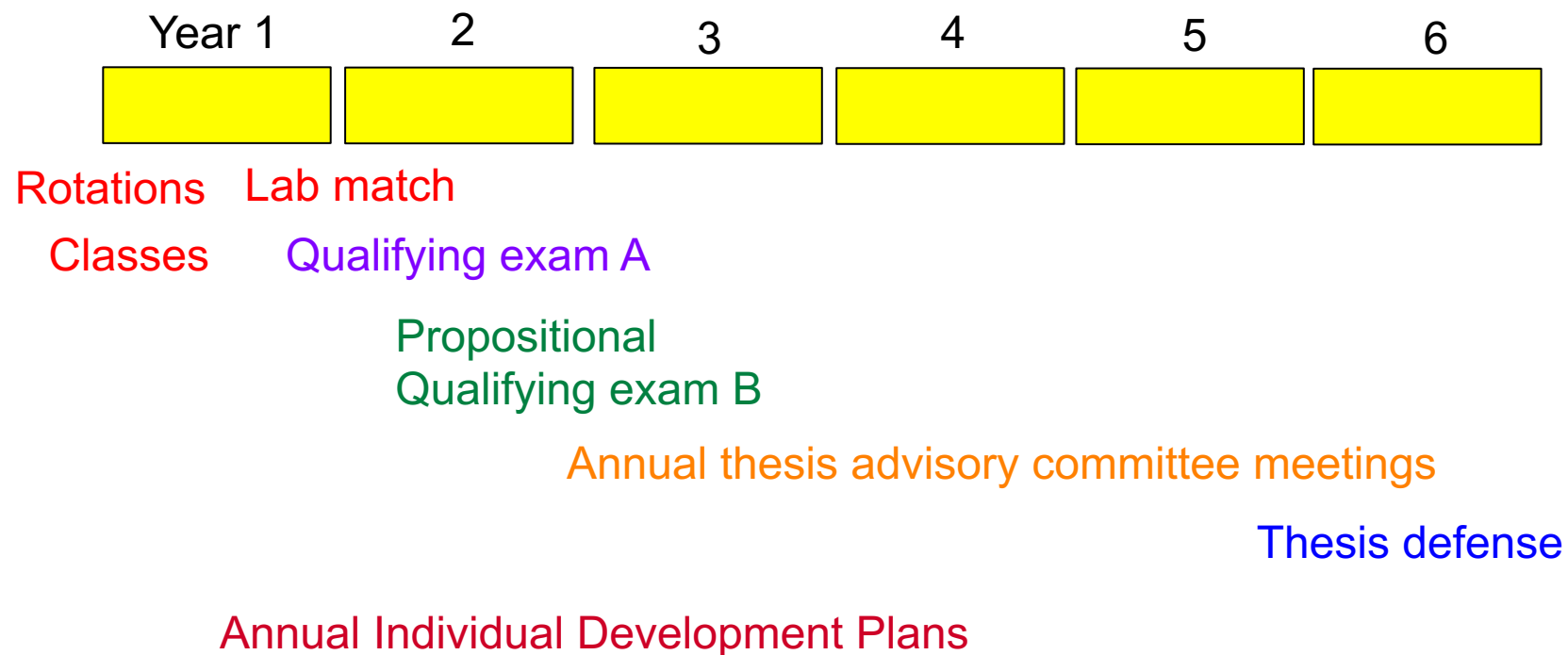
Competencies learned in PhD programs – transferrable skills

- **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. **Manuscript and grant writing workshops and groups**
- **Experimental skills** - rotations and thesis lab, collaborations
- **Responsible conduct of research** – **Ethical Scientific Conduct initial and refresher**
- **Rigor and reproducibility** - **Biostatistics classes**
- **Computational skills** – Computational courses and **Certificate in Computational Biology**
- **Collaboration/Teamwork** – working with other labs and within lab, **join student organizations**
- **Management and emotional intelligence skills** - manage your own project, **Individual Development Plans, mentor undergraduates, interact with faculty and peers (AAMC documents)**
- **Leadership and professionalism** – **volunteer for events and organizations, iJOBS**
- **Communication skills** - presentations in lab, university, and national meetings, writing manuscripts and fellowships, 3 Minute Thesis Competition, **Communicating science class**





Typical PhD timeline



Statistics:

Time to defense: ~5.7 years

of publications: ~3 papers, ~1.4 first author



Agreements between PhD Mentor and Mentee (AAMC documents)



Compact Between **Biomedical Graduate Students** and Their **Research Advisors**

A framework for aligning the graduate student mentor-mentee relationship

January 2017

Appropriate Treatment of **Research Trainees**

October 2021

Group on Research, Education, and Training

Association of
American Medical Colleges

Individual Development Plans (IDP)

- Educational research has shown that IDPs increase productivity
- NIH requires 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/>) and upload to Canvas by Aug 31.
- Second and fourth year graduate students will complete Rutgers IDP and meet with an professional in potential career area.
 - Milestones and expectations for each year of grad school
 - SMART goals (Specific, Measurable, Achievable, Relevant, Time-Bound)



Financial Support and Predoctoral Fellowships

- All accepted students receive full coverage of tuition, health insurance and fees plus stipend of \$46,000/year for 2025-2026.
- After first year, you can be covered by PI's grant, T32 training grant (e.g. IMSD, Biotech), Teaching Assistants, or your own external fellowship
- ~17% of current biomedical students have external fellowships
 - Application workshop every Fall
 - Specific Aims workshop every Spring
 - Courses on grant applications
 - Lots of templates and support materials
- GradFund also helps with fellowship applications
 - \$100 million in external fellowships and awards in the last 20 years
 - Help identifying funding sources
 - Virtual Office
 - Help with application logistics
 - Feedback, editing, and revising





Grant Writing Workshops



Where Should I Start? Building A Research Proposal



April 16th: Participants will learn about constructing
12:00-2:00pm their proposal for submission as a NIH
F-series Fellowship Application

*All interested students and postdocs are welcome to attend this in-person session in Piscataway at EOHSI (Room C). Others can participate via Zoom.
Lunch will be served at 11:30 am.*



Participants in this workshop will have top priority to join the 10-week fellowship writing group in Fall 2024.

Supported by NIH Grants UL1TR003017, T32ES001748, P30ES005022

NJ ACTS, Rutgers School of Graduate Studies, Rutgers Health Office for Postdoctoral Affairs, and the Center for Environmental Exposures and Disease' after the Office for Postdoc Affairs

Boiler plate paragraphs for various sections of fellowships

NIH Fellowship Writing Group

Under the guidance of a Grant Writing Coach, construct your NIH fellowship application this Fall.



Who is this Writing Group for?

PhD and MD/PhD students and Postdocs preparing NIH NRSA fellowship applications for the December 2024 or April 2025 deadlines. We typically accept ~25 participants each year.



What is the weekly commitment?

This is an interactive group. You will need to submit application sections each week – and – peer review sections from other participants in addition to the 1-hr live meeting. Plan to commit ~6 to 8 hr effort each week.



Where and when do I sign up?

Sign up at the QR code. Limited spots!



Are participants successful in obtaining their NIH fellowship?

Yes! Successful examples are available to participants. Some recent awardees include:

F32GM140669 F31HL160196 F31ES034269
F31ES032319 F31NS122438

**Mark Your
Calendars Now!**



**All meetings are
Mondays 1 pm EST
starting Sept 9th**

Note: Applicants for NIH fellowships must be a US citizen or permanent resident to apply. Questions? Email Lauren Aleksunes at aleksunes@eohsi.Rutgers.edu

Training Grants to Support PhD Students

- NJ Alliance for Clinical and Translational Science (NJ ACTS)
<https://njacts.rbhs.rutgers.edu/education-training/workforce-development/tl1-predocutorial-postdoctoral-training-awards/>
- Biotech training program <https://biotechnology.rutgers.edu/>
- Initiative for Maximizing Student Development
<https://grad.rutgers.edu/academics/graduate-programs/biomedical-and-health-science-all-degree-programs/initiative-maximizing-student-development>
- Environmental Toxicology <https://jgpt.rutgers.edu/>
- Training in Translating Neuroscience to Therapies <https://rwjms.rutgers.edu/institutes/institute-for-neurological-therapeutics/mission>
- Training in Addiction Research – <https://www.addiction.rutgers.edu/announcing-a-new-nida-funded-t32-pre-postdoctoral-research-training-program-in-neuroscience/>



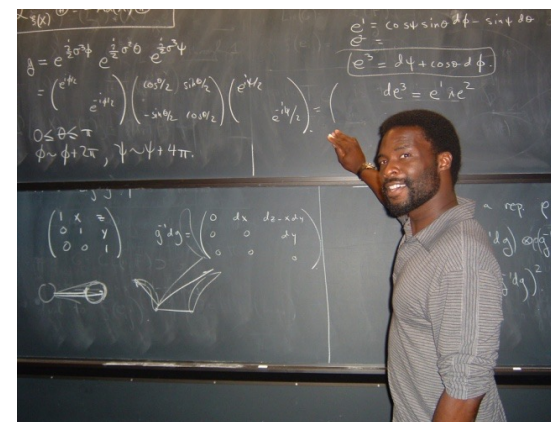
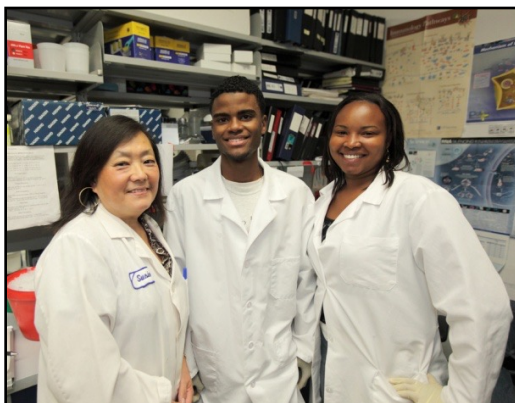
Commitment to Diversity and Inclusion

- Training grants (e.g. IMSD) and pathway programs (e.g. RiSE) focused on graduate diversity
- Leadership at Rutgers are diverse and have created Division of Diversity Inclusion and Community Engagement
- Grad school strategic plan to enhance support for student from underrepresented groups
- Membership in organizations such as ABRCMS and SACNAS
- Inclusive teaching and mentoring
- Multicultural local and regional population

~22% of applicants get offered admission and 40% of those matriculate

~14% Black, Hispanic, and Puerto Rican

~51% Female



International Scholars

Rutgers Global–International Scholar Services provides immigration services and advising to help international scholars 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 immigration-related matters for international scholars
- A regular series of cross-cultural social programs to help you acclimate to U.S. and Rutgers culture, called the International Friendship Program (IFP)

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>

I also offer annual seminars with an Immigration Attorney to give the current status



Graduate Student Organizations

- Molecular Biosciences GSO (MBGSO)
- Rutgers Association of Toxicology Students (RATS)
- NeuroConnections
- Biomedical Engineering Student Society (BESS)
- Chemistry and Chemical Biology (CCB)
- Nutritional Sciences GSO
- Endocrinology and Animal Biosciences GSO
- Microbial Biology (ASM)
- NJ Seeding Labs
- Society for Advancing Chicanos/Hispanics and Native Americans in Science (SACNAS)
- Council of Black Graduates (CBG)
- iJOBS blog
- Rutgers GSA – events for everyone
- Affinity Groups (Bisexual students, BIPOC LTBTQIA2S+ students, Chinese students, International students, African students, Neurodivergent students. Parent and Parenting students)



Mental Health Resources

Counseling and Psychiatric Services (CAPS)

“Let’s Talk” drop-in every Thursday from 10am-12pm

Graduate Student Specific Workshops:

- Time Management and Life Balance
- Stress and Anxiety Reduction
- Building Resilience and Managing Expectations
- Health Communication and Assertiveness
- Mindfulness Meditation
- Yoga
- Cultivating Calm



Uwill teletherapy

Free immediate access to teletherapy through an easy-to-use online platform

- Choose a therapist based on your preferences, including issue, gender, language, and ethnicity.
- Select a time that fits your schedule with day, night, and weekend availability.



“Let’s Talk” Counseling

School of Graduate Studies

Drop-in hours with Dana Simons every **Thursday from 10am-12pm in-person** in Center for Advanced Biotechnology & Medicine (CABM) Room 240, 679 Hoes Lane West, Piscataway. No appointment needed! If you prefer by phone, call 848-932-7884 and press #2 to leave a message with your name, RUID, and phone number and Dana Simons will call you back.



“Let’s Talk” is a **FREE CAPS counseling service**. Conversations with experienced CAPS counselors are **private and confidential**.



No problem or stress is too small to share at a “Let’s Talk” Session



Professional Development and Career Exploration

Writing Workshops and Ongoing Writing Accountability Groups

Past year

- 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
- Best Practices for Depicting Biological Pathways

Upcoming

- November 22 from 12-4pm Developing an Effective Writing Process in Science

Mondays from 2:30-4:30pm in Center for Advanced Biotechnology and Medicine (CABM), 679 Hoes Lane West, Room 241, Busch Campus, Piscataway. [Here is the attendance sheet](#) if you want to add your name.

Wednesdays from 10am-12pm in Child Health Institute of New Jersey (CHI), 89 French St, Room 4278, New Brunswick Health Science Campus, New Brunswick. [Here is the attendance sheet](#) if you want to add your name.

Fridays from 4-6pm in Bartlett Hall, 84 Lipman Drive, Library Room, Cook Campus, New Brunswick. Sign up [here](#)

Course in Communicating Science

<https://grad.rutgers.edu/academics/academic-enrichment-programs/communicating-science-course>

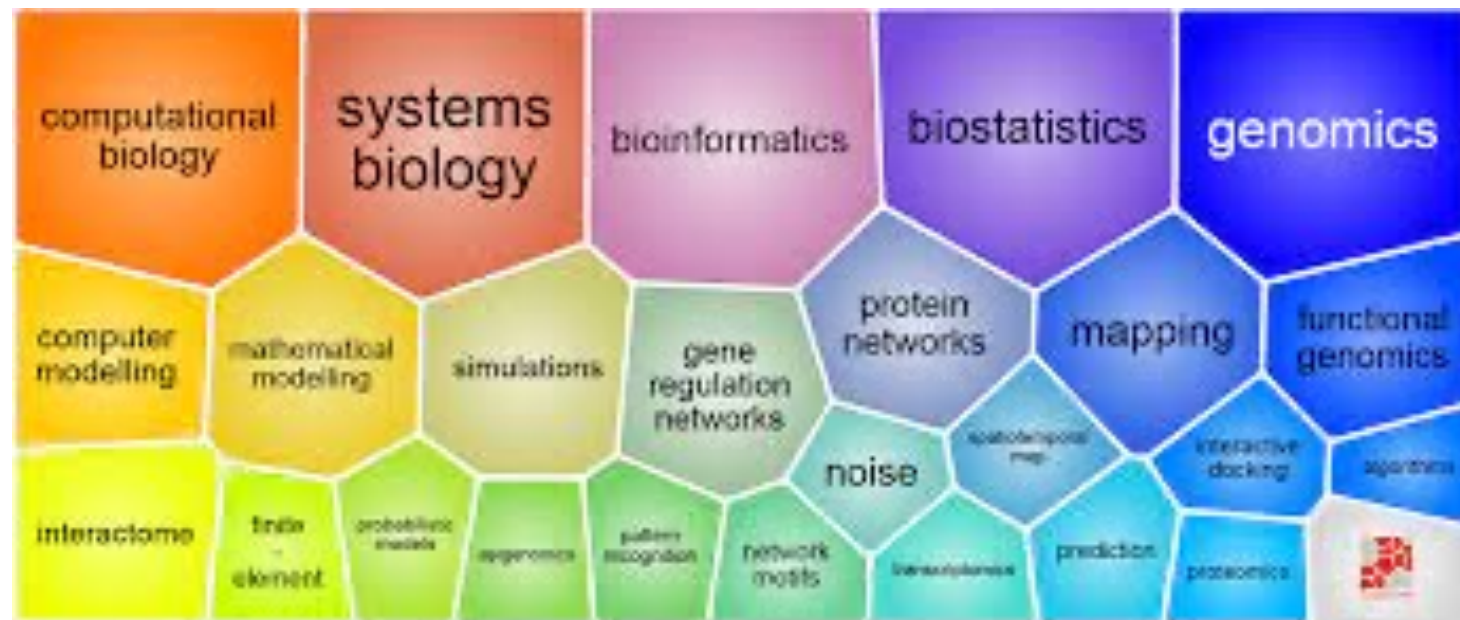
- Response to input from industry and academia
- Grant from Burroughs Wellcome Fund (Ponzio PI)
- Required for some postdocs on T32s
- Techniques from Alan Alda Center. Faculty from Mason Gross and Sciences
- 3 Minute Thesis
- Capstone project with mentor in field of interest



Computational Biology Certificate

<https://grad.rutgers.edu/academics/graduate-programs/biomedical-and-health-sciences-all-degree-programs/computational>

- The goal of this 12-credit Certificate is to train biomedical Ph.D. students in Computational Biology. Upon its successful completion of this degree, the Certificate will be added onto the transcript in addition to the Ph.D. degree.
- Eligibility: PhD candidates in biomedical sciences affiliated with the following programs who are in their second year or higher of graduate school are eligible to apply for the certificates.
- Curriculum: Python, Bioinformatics, Computational Genomics, Machine Learning, Artificial Intelligence





BEACON: Investigation of Professional Coaching as an Intervention to Support the Success of URG Biomedical Ph.D. Students



Coaching is a partnership that differs from mentoring and advising. While mentors and advisors give directions and advice, coaches engage their clients in a thought-provoking and creative process aimed at maximizing their personal and professional potential.

BEACON stands for Biomedical Excellence Achieved through COaching Networks. It is an educational research study funded by the NIH, starting in the fall of 2024, which will test whether professional coaching has positive effects on biomedical Ph.D. academic achievement. (Baseline data is currently being collected.)

Contact PI: James Millonig, Ph.D., Rutgers School of Graduate Studies, 675 Hoes Lane, Research Tower, Room 102, Piscataway, NJ 08854

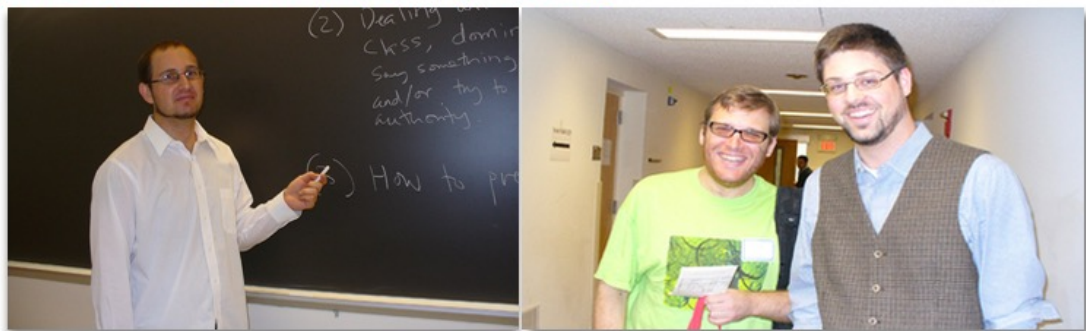


Teaching and Leadership Opportunities



<https://tap.rutgers.edu/>

Rutgers Academy for the Scholarship of Teaching and Learning



<https://grad.rutgers.edu/professional-development/rutgers-academy-scholarship-teaching-and-learning>

STEM GRADS GIVING BACK *Upward Bound Math-Science*

Rutgers graduate students - you can be the person who inspires a high school student to pursue college and the study of science!

SGS is partnering with Rutgers Upward Bound Math-Science a pre-college program designed to assist and motivate first generation and low-income students to successfully graduate from high school, prepare for college admission, and complete their baccalaureate degree in STEM.



PreDoctoral Leadership
Development Academy

<https://ol.rutgers.edu/programs/plda/>



Mentoring Skills: Effective Mentoring of Undergraduates Microbadge



Effective Mentoring of Undergrads

This active learning workshop for PhD students, Postdoctoral Fellows and Faculty will use techniques and **case study discussions in breakout sessions** to teach tools and skills to better mentor undergraduate students in a research setting. Attendees will also reflect upon approaches they would use to mentor trainees and employees when they are running a lab or research group in the future. An opportunity to earn a **Microbadge in Mentoring Undergrads** is available for those who wish to follow up with additional activities.



Wednesday, May 1, 2024
12-2pm



Registration link

https://rutgers.ca1.qualtrics.com/jfe/form/SV_0uk9EgFqsXEhEFM

Zoom link

<https://rutgers.zoom.us/my/alderja> Passcode: Janet

Topics and interactive case studies led by Drs. Janet Alder, Evelyn Erenrich, Xenia Morin and Benton Purnell from the National Research Mentoring Network (NRMN) and Entering Mentoring:

- Managing student projects
- Contract for undergrads
- Aligning expectations
- Dealing with anxiety
- Cultural sensitivity
- Assessing understanding
- Promoting motivation





Rutgers iJOBS

Founded by NIH Broadening Experiences in Scientific Training (**BEST**)
Awards \$2 million for 5 years (2014-2019) to create
career and development program for PhD students and postdocs

Rutgers U

Boston U

UC Davis

UC Irvine

UC San Francisco

U Chicago

U Colorado Denver

Cornell

U Mass Worcester

Michigan State

New York U

U North Carolina

U Rochester

Vanderbilt

Virginia Polytech

Wayne State

Emory/Georgia Tech



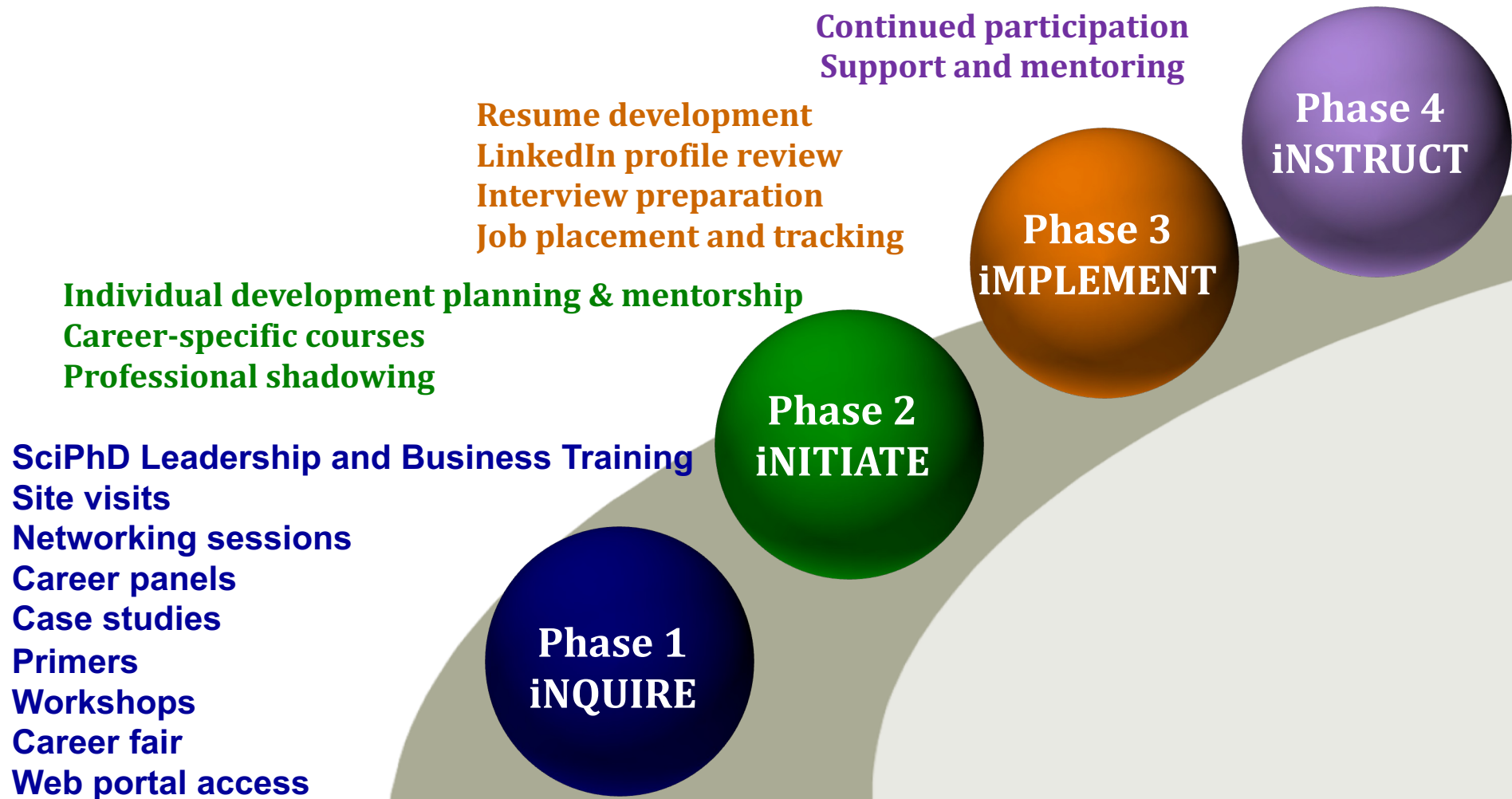
Representative Career Panels

- 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

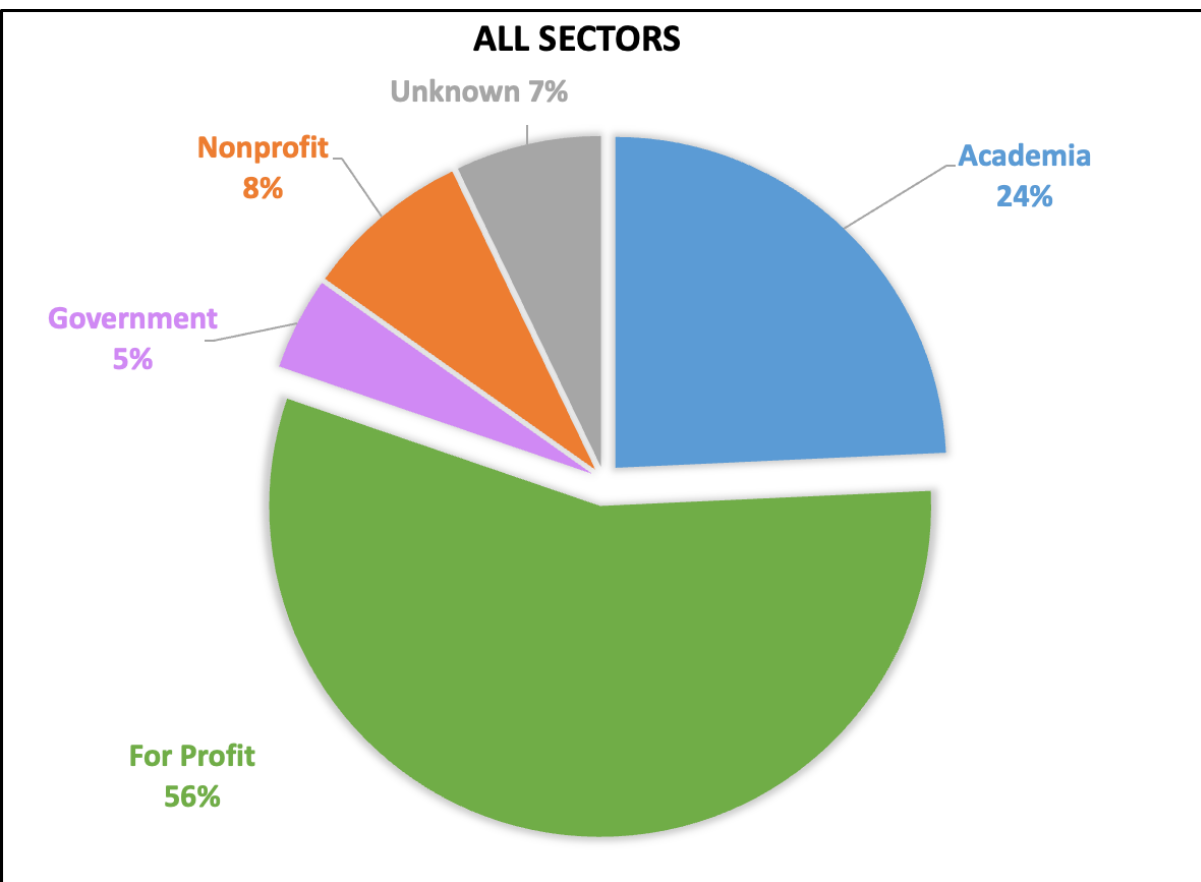
- Food and Fragrance Industry
- Journalism
- Teaching Education Outreach
- Entrepreneur
- Plant and Agriculture Industry
- Non-faculty Jobs in Academia
- Tech and Sales Support



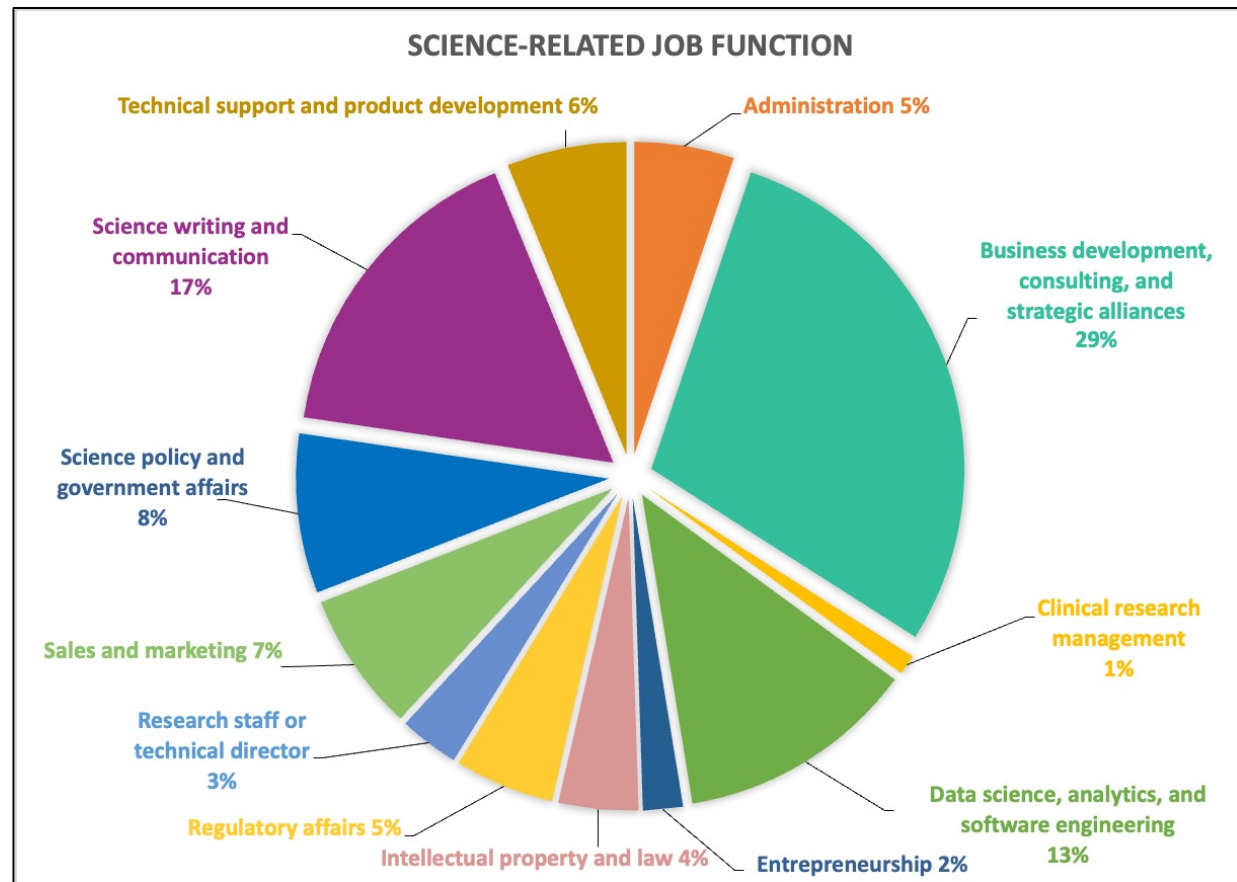
iJOBS Phased Programming



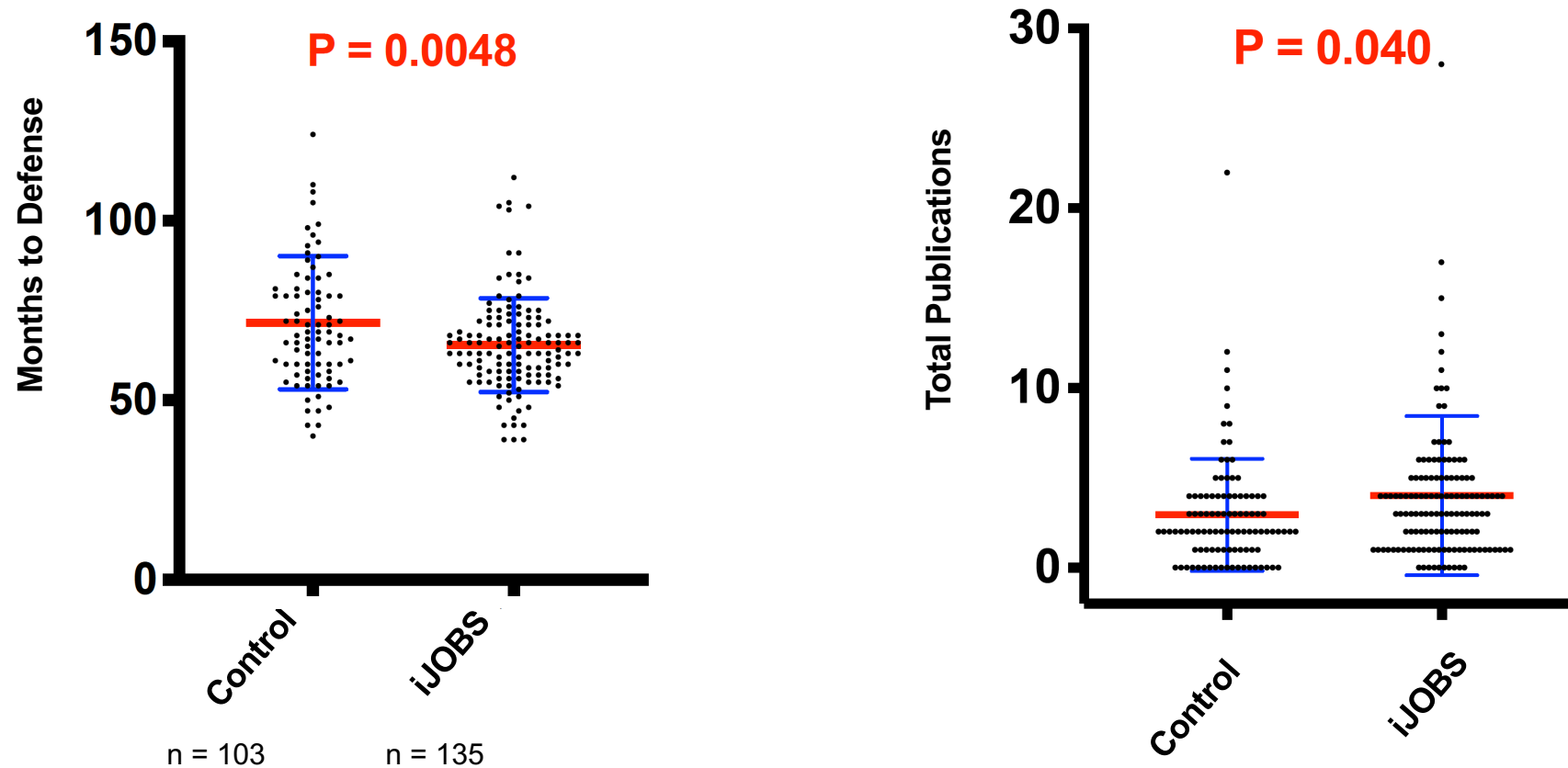
First Position of SciPhD Participants (n = 310)



First For-Profit Non-Research Positions (n = 310)



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



Application Process

Ready to Apply? Components of the Application

<https://gradstudy.rutgers.edu/apply/apply-now>



- Most PhD programs have deadline of December 1
- Application form including contact information
- Personal Statement
- Recommendations
- Curriculum Vitae (CV)
- Transcripts - If your school does not have a GPA system that was 4.0 scale, please enter 0.00 on the electronic application. GPA information is used for statistical purposes and your transcripts will clarify your academic achievement.
- GREs – not required
- TOEFL and IELTS – You are exempt from submitting TOEFL or IELTS scores if you are a Permanent Resident, US citizen, or an international applicant with a minimum of three years undergraduate studies or a masters degree with the mode of instruction being English.
- Application fee (\$70)
 - ★ Waived for McNair, Project 1000, GEM scholars, RiSE alumni
 - ★ We normally do not waive fees for others, but we may defer a fee under extraordinary circumstances. You can request a fee deferral by mailing us a statement of need and supporting evidence of need, such as tax returns or a letter from a financial aid officer from your school. After you have applied, fill out the contact form <https://grad.admissions.rutgers.edu/Contact/> with your statement of need and your Application ID number

Personal Statement

- What I have done in *proposed field of study*
 - ★ What got you interested in this field?
 - ★ Discuss *your* research project(s) to date
 - What were *your* most important contributions? Why are they important?
 - Talk about your hypothesis and big picture
 - ★ Details of *your* service or volunteer work, leadership only if relevant
- What I want to do and why
 - ★ Continue to study in-depth and *specify the topic*
 - ★ Become a researcher or scholar in *this field*
- Why Rutgers (or this school) and why this program?
 - ★ The strengths of the program in (*specify*) areas
 - ★ *Specific* faculty doing research that fits with your interests – WHY that faculty?
- Show ability to work independently but also on a team
- Stand out and use your own voice but be wary of humor and quotes
- Be clear and explain what you want to do, why you want to do it, how you are going to be successful, what you want to do after degree



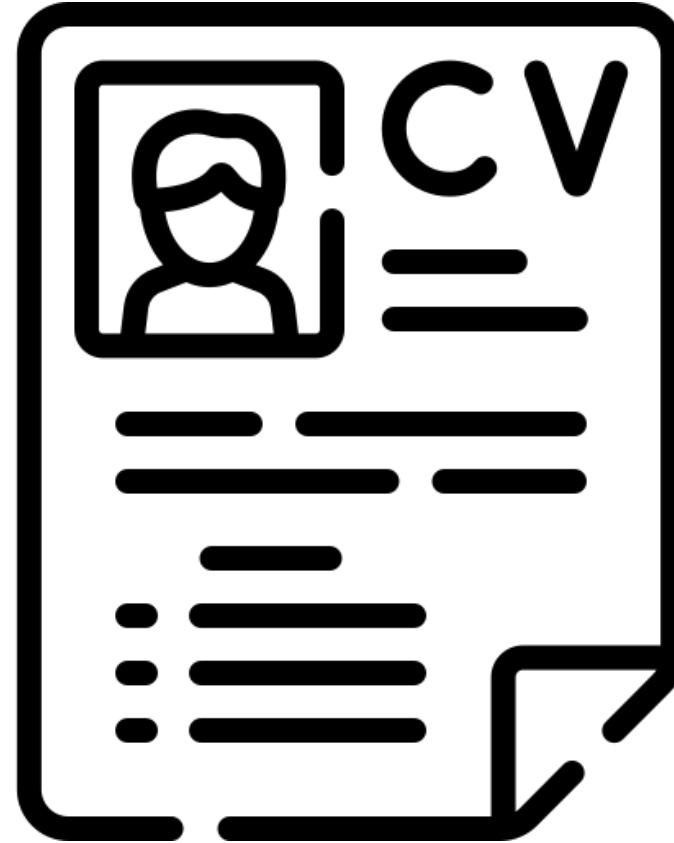
Recommendations

- Usually 3
- People who know you well from
 - ★ Your research
 - ★ Advanced, inquiry-based courses
 - ★ Service or volunteer work (only if relevant)
- Examples of Someone who will be able to say more than “Susie got an A”
 - ★ Supervisor of summer research project(s)
 - ★ Professor in an upper level class where you participated actively and did independent work
 - ★ Should be high ranked person AND someone who knows you well
- Set up appointment
- Ask “*Are you comfortable writing a STRONG letter?*”
- Give writer info on both school and program
- Provide copies of statements and CV
- Explain anything you want writer to cover or emphasize
- Give ample lead time
- Have a back-up (4th) person



Curriculum Vitae (CV)

- Contact information
- Education
- Relevant experience
- Publications
- Presentations (oral and poster)
- Honors and awards
- Qualifications and awards
- Grants received
- Institutional service
- Certifications
- Professional associations



Interview days

- First one may be virtual
- If in person you will get your transportation and hotel covered
 - Be able to speak about your research
 - Research the school and who you will be meeting with
 - Be ready to ask the faculty and current students questions





QUESTIONS?

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<https://grad.rutgers.edu/academics/graduate-programs/biomedical-and-health-sciences-all-degree-programs>

