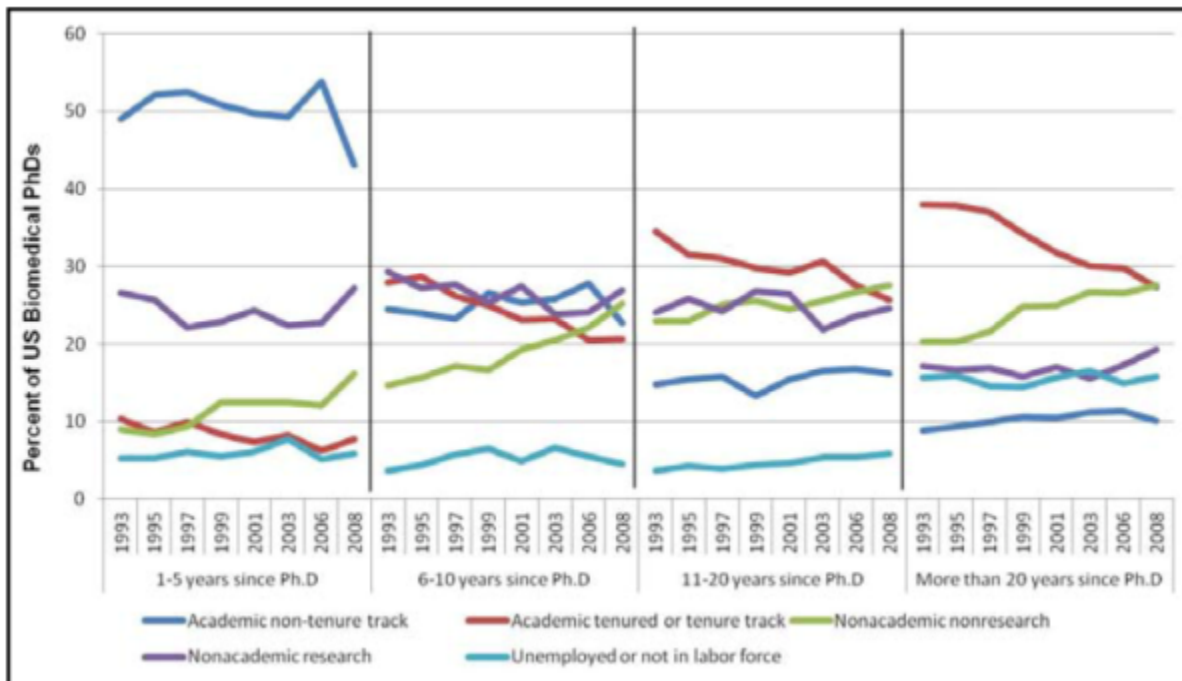# Rutgers iJOBS

Interdisciplinary Job Opportunities

for Biomedical Scientists

A Program Overview

Changing Times

According to a recent report by the NIH Biomedical Workforce Working Group, approximately
20% of PhD graduates will pursue academic positions,
while 80% will pursue other career options.

US Trained Biomedical PhD Employment by Years Since Degree

NIH BEST Program

- The National Institutes of Health established the BEST program: Broadening Experiences in Scientific Training

- Award granted to select universities to establish innovative PhD programs focused on professional preparedness for non-academic careers.

Rutgers was granted this prestigious 5 year opportunity in Sept. 2014 and we stand ready to launch our program in January, 2015

RUTGERS

17 NIH BEST Awards.
$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

Common goals
Shared programming
Active evaluation
Process improvement

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

Rutgers' program,

Interdisciplinary Job Opportunities for Biomedical Scientists (iJOBS)
will empower our PhD students and postdocs to take action toward career development and build the knowledge, professional network, and experience needed to reach their career objectives.

The World's Cure Corridor
New Jersey

Unparalleled Professional/Industrial Environment

- Over 3000 life science and biopharmaceutical establishments

- 350 biotech companies

- 17 of the 20 largest pharmaceutical companies globally
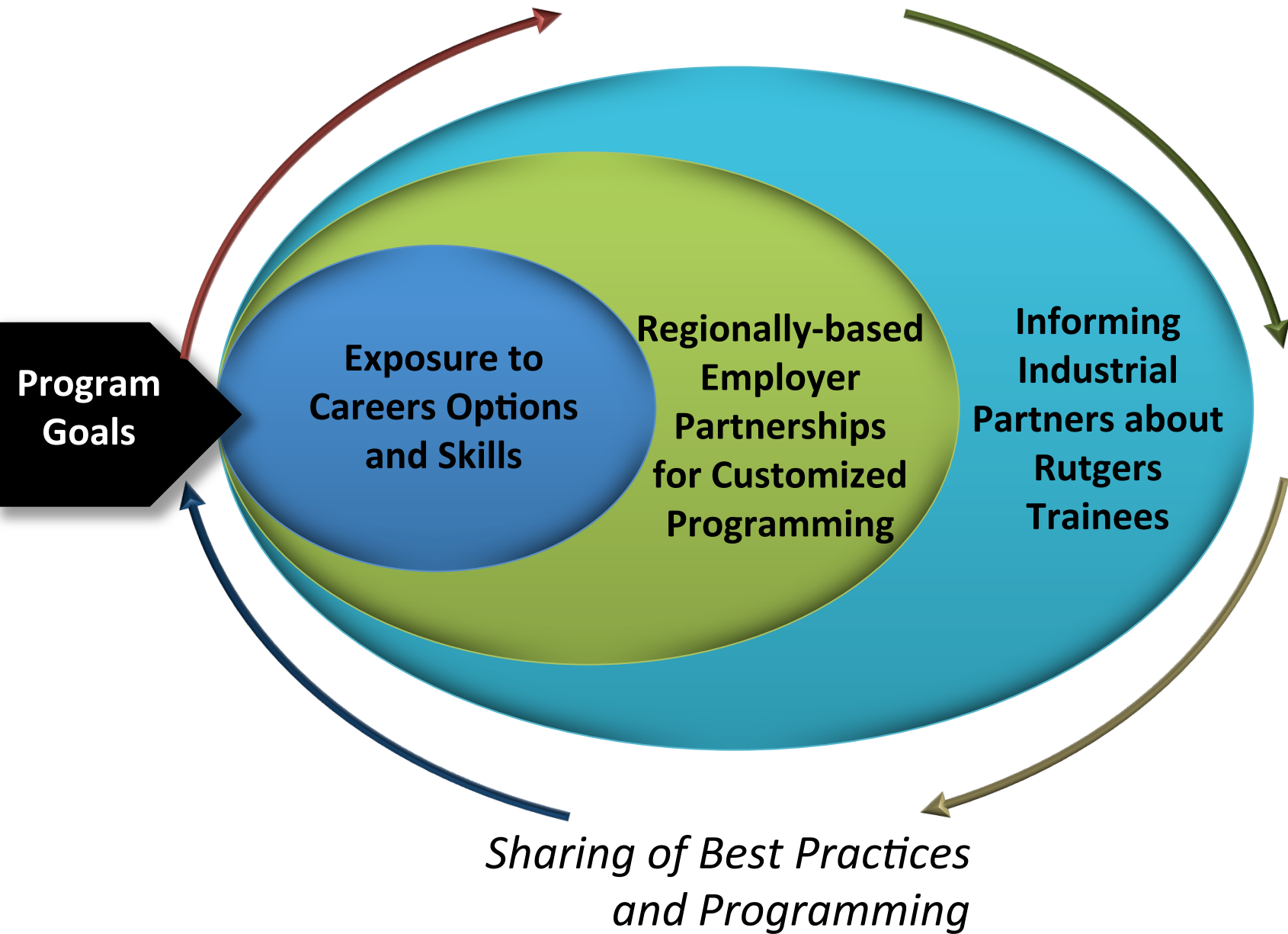
Rutgers iJOBS Team

Key Personnel

Maish Yarmush, PI
Jim Millonig, PI
Susan Engelhardt, PD
Janet Alder, PD
Steve Garrett, PD
Nadine Stevens
Hal Salzman
Jennifer Cleary
Sunita Chaudhary
Francois Berthiaume

Supporting Personnel

Tim Maguire
John Pintar
Nancy Walworth
Rick Padgett
Martha Soto
Deborah Silver
Jerry Langer
Mary Creteau
Mary Ellen Presa

RUTGERS

Phased Participation

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 4
iNSTRUCT
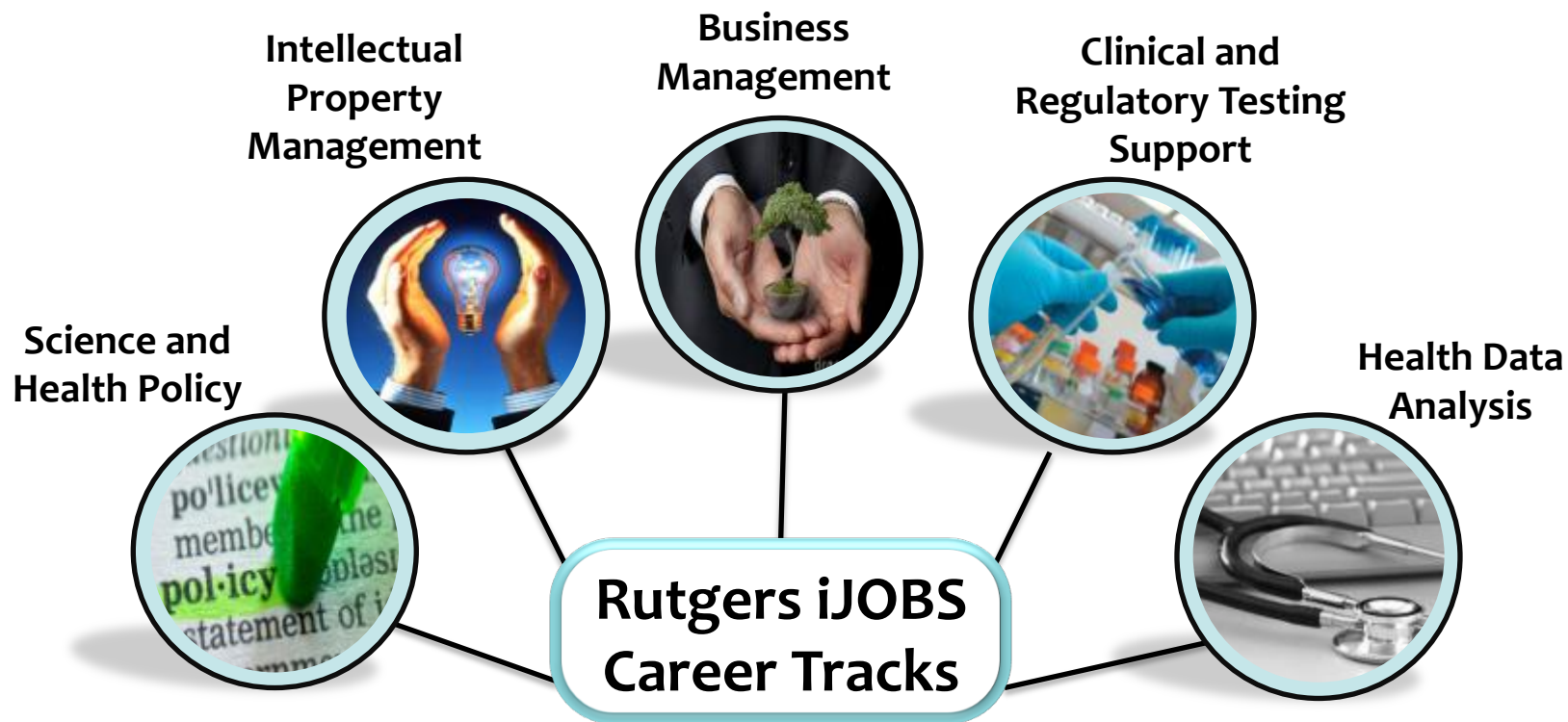
Phase 3
iMPLEMENT

Phase 2
iNITIATE

Phase 1
iNQUIRE

* A minimum of 12 hours of program participation is required to apply for Phase 2 trainee status.
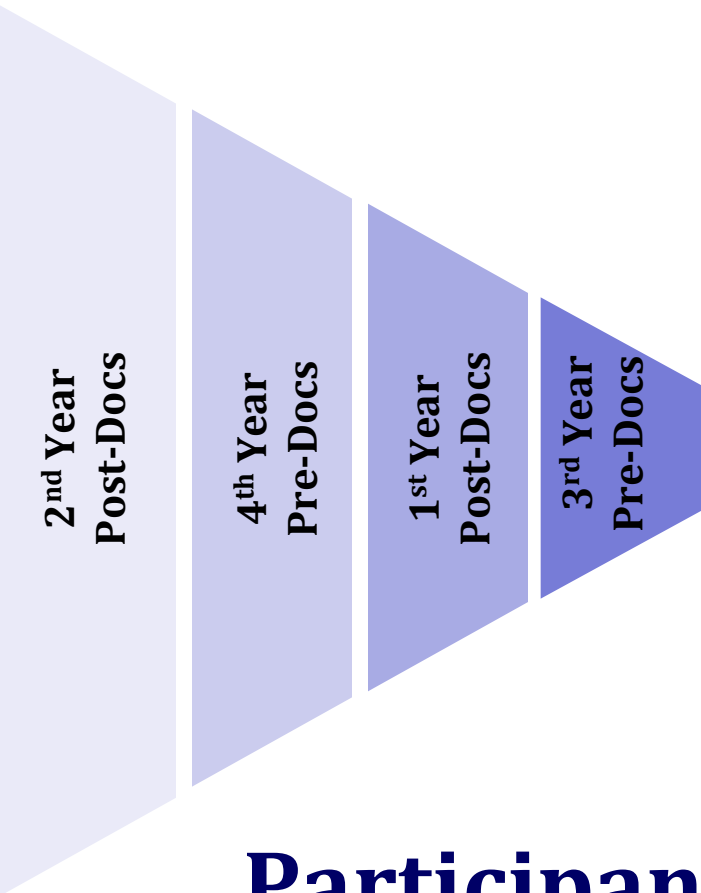
Phased Programming

Continued participation
Support and mentoring

Resume development
Interview preparation
Career fair
Job placement and tracking

Individual development planning & mentorship
Career-specific courses
Professional shadowing

SciPhD Leadership and Business Training
Professional site visits
Professional networking sessions
Informative seminars
Web portal access

Phase 4
iNSTRUCT

Phase 3
iMPLEMENT

Phase 2
iNITIATE

Phase 1
iNQUIRE

Career Tracks

	Science and Health Policy: Laws and regulations that affect science and research for the attainment of society's health care goals.	• Public health policy analysts or evaluators • Health/science legislative affairs specialists • Health/science lobbyists • Health/science public affairs expert • Health/science policy consultants
	IP Management: Protection, marketing, assessment, valuation, commercialization and monetization of intellectual property assets.	• Patent agents • IP licensing managers • Technology/case managers • Intellectual asset management (IAM) professionals • IP portfolio analysts
	Business Management: Biomedical product development life cycle(s) regarding strategy definition, solution implementation, risk management, financing, evaluation and reporting.	• Business and marketing strategists • Medical scientists • New product introduction • Mergers and acquisitions • Medical and health services managers
	Clinical and Regulatory Testing Support: Ensuring compliance with safety regulations.	• Clinical diagnosticians • Clinical research project/trials managers clinical trial design, implementation • IRB protocol development
	Health Data Analysis: Intake and interpretation of health and science data in a statistically meaningful way.	• Epidemiologists • Biostatisticians • Medical informaticists

GRADUATE STUDENTS	POSTDOCTORAL FELLOWS
GSBS at NJMS	**NJMS**
Cell Biology, Neuroscience and Physiology	Microbiology, Biochemistry and Molecular Genetics
Biomedical Engineering	Cell Biology and Molecular Medicine
Infection, Immunity and Immunology	Pharmacology and Physiology
Molecular Biology, Genetics and Cancer	Neurology and Neurosciences
Oral Biology	Pathology and Laboratory Medicine
GSBS at RWJMS / GSNB joint	Preventitive Medicine and Community Health
Biochemistry	**RWJMS**
Biomedical Engineering	Biochemistry and Molecular Biology
Cell & Dev Biology	Environmental and Occupational Medicine
Exposure Science	Medicine
Microbiology & Molecular Genetics	Neurology
Neuroscience	Neuroscience and Cell Biology
Pharmacology, Cellular & Molecular	Pathology and Laboratory Medicine
Physiology & Integrative Biology	Pharmacology
Toxicology	**SAS**
GSNB	Cell Biology and Neuroscience
Chemical & Biochemical Engineering	Chemistry and Chemical Biology
Chemistry & Chemical Biology	Genetics
Computational Biology & Molecular Biophysics	Molecular Biology and Biochemistry
Endocrinology & Animal Biosciences	**SOE**
Environmental Sciences	Biomedical Engineering
Medicinal Chemistry	Chemical and Biochemical Engineering
Microbial Biology	**SOP**
Nutritional Sciences	Chemical Biology
Pharmaceutical Science	Pharmacology and Toxicology
	Medicinal Chemistry
	Pharmaceutics
	SEBS
	Animal Sciences
	Biochemistry and Microbiology
	Environmental Sciences
	Nutritional Sciences

2nd Year Post-Docs

4th Year Pre-Docs

1st Year Post-Docs

3rd Year Pre-Docs

Participant Eligibility
Black=2014-2015
Grey=2015->

Recent (<= 5 year) alumni eligible for participation from 2015->

Industrial and Regional Support Abounds

University Support Abounds

Insitutional
Robert Barchi
Dick Edwards
Chris Molloy

Deans
GSBS
GSNB
RWJMS
NJMS
Pharmacy
Bloustein
Business
Law
Arts and Sciences
Dental
SEBS

Training Grant Directors
Center Directors
Career Services
175 faculty!!!!

Ambassadors to Each Track
Science and Health Policy
   Joel Cantor
   Stuart Shapiro
Business Management
   Hassan Mahmud
   Deborah Doughterty
IP Management
   John Kettle
   Vince Smeraglia
Clinical and Regulatory Testing
   Ned Lattime
   Nancy Reilly
Health Data Analysis
   David Foran
   Manish Parahsar

Laboratory Research
is
#1 Priority

Diverse iJOBS Programming

Trainees must log 12 hours of participation in Rutgers iJOBS events
Representative Programming Examples

- **Individual Development Planning**

- **Industrial Site Visits**

- **Industrial Shadowing**

- **Networking Sessions**
  - Speed Networking
  - Other (such as Trivia Nights and Fireside Chats)

- **Topical Seminars**
  - Career-Specific Panel Discussions
  - Career Tools (Using Social Media to Network, Secrets to Digital Interviews, other)

- **Student-Led Brown Bag Lunches**

- **Club Activities**

- **Workshops**
  - SciPhD: Leadership and Business Skills for Scientists
  - Career Track Skills
  - Tools for Successful Job Search
  - Other (Professional Grant Development, Communication and Conflict Resolution, Negotiation, Work-Life Balance, Behavioral Interviewing)

- **Career Fair**

- **Annual Symposia**

SciPhD: Leadership and Business Skills for Scientists

- The Business of Science

- Successful Communications as a Scientist

- Six Leadership Styles

- Developing Your People

- Finance & Negotiations

- Building Effective Teams

- Strategic Project Management and Networking

- Applying What You've Learned

**Capacity for 70 participants
40 Hours**

**Five Mondays 5:00-8:00 PM
2/9, 2/23, 3/2, 3/9, 3/23**

**Three Sundays 10:00-6:00 PM
2/22, 3/15, 3/22**

**Rutgers CABM
679 Hoes Lane West Piscataway,
New Jersey 08854**

Individual Development Planning

- Serves as a tool to support and organize trainees' career development and training opportunities

- NIH requires IDPs for all training grants and research shows that IDPs increase productivity*

- IDP development works to:
  - Understand, leverage, and strengthen your technical and leadership competencies
  - Identify, clarify, and commit to goals based on your priorities and professional goals
  - Create and develop strategies for goal achievement
  - Ensure you make the progress you want on your goals

* http://postdoc.sigmaxi.org/results

Individual Development Planning

Pre-Docs:

- All SciPhD registrants, GSBS students, and GSNB students in "joint" programs must complete an IDP -> RU Sakai site.

- Phase in process for 2014-15
  - 1st and 3rd year students:
    - Complete the AAAS IDP
  - 2nd and 4th year students:
    - Complete AAAS IDP
    - Complete the Rutgers IDP form
    - Have meeting with student, PI, and representative from grad school/ iJOBS. 4th years also have professional mentor

Post-Docs:

- All SciPhD registrants are required to submit IDP* -> RU Sakai site.

- Annual Rutgers IDP form will soon be approved for all postdocs, though encouraged to complete the AAAS IDP* in the interim

Annual IDP Deadline: August 31, 2015

* AAAS IDP Link: http://myidp.sciencecareers.org

Industrial Shadowing

- Industrial and institutional partners host externships at their places of business and within applicable organizations. A diverse group of companies/institutions have (already) pledged support.

- Each trainee is matched to a shadowing opportunity at a company/ institution involved in work relevant to their chosen track.

- To ensure a balance with research activities, shadowing cannot exceed 1 day/month.

- Shadowing opportunities can be singular, cross-firm, and/or span tracks.
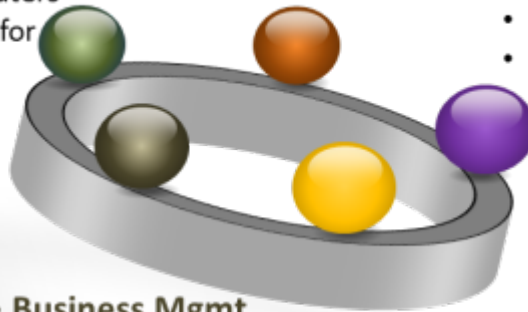
Career Track Skill Classes

Clinical & Regulatory Support & Testing
- Fundamentals of Regulatory Affairs
- Practical Aspects of Clinical Trial Design/Conduct
- Drug Development from Concept to Market
- Drug Discovery through Preclinical Development
- Statistics in Clinical and Translational Research

**35 trainees enrolled
Two 40 Hour Classes
Relevant Topic Segments
Schedule TBD**

Health & Science Data Analysis
- Statistics in Clinical and Translational Research
- Applications of Parallel Computers
- Programming Methodologies for Numerical Computing
- Database Design and Management
- Fundamental of Analytics
- Data Mining

Science and Health Policy
- Health Care Policy
- Public Policy Formation
- Ethics in Public Policy
- Environmental Economics and Policy
- U.S. Healthcare System & Pharmaceutical Managed. Markets

Industrial Development & Business Mgmt.
- Principles of Finance and Accounting
- Innovation and Entrepreneurship for Science & Technology
- Project Management
- Supply Chain Strategies
- Pharmaceutical Marketing Research
- Negotiations

Intellectual Property Management
- Fundamentals of Intellectual Property
- Fundamentals of Regulatory Affairs
- Business Plan Development
- Marketing for Science & Technology Management
- Fundamentals of Technology Transfer Agreements

Job Search Tool Workshops

- Interview workshops
- Job search boot camp
- Resume writing workshops
- Dining etiquette dinner
- Networking clinics
- Other

- Offered in collaboration with Rutgers University Career Services
- External partnerships with Department of Labor Talent Network grantees (RU/BioNJ/NJIT)

Program Registration

Phase 1

- iJOBS programming open to all pre and post-doctorates, with priority given to 3rd year pre-doctorate students /1st year post-doctorates, then to 4th year pre-doctorate students /2nd year post-doctorates.

- Many events have limited capacity; participants registered on a first come, first served basis (with deference to stated priority).

- PI approval required for participation in Rutgers iJOBS programming.

Phase 2

- iJOBS applications required for "trainee" status and priority registration at subsequent iJOBS events/courses.

- Extra capacity open to all pre and post-doctorates, with priority given to 4th year pre-doctorate students and 2nd year post-doctorates on a first come, first served basis.

- Trainee application approval based upon Phase 1 participation, communicated interest, and personal relevance. PI letter of reference is required with application.

Program Registration (cont'd)

- Registration links for all events will be listed on the iJOBS web site, posted on the iJOBS web calendar and open to registration 4 weeks prior to the event date at 12:00 PM.

- For example, SciPhD begins on Monday February 9, 2015. Registration opens Monday January 12, 2015 at 12:00 PM.

- As registration is priority-based, confirmation will be sent to those that are successfully enrolled in the event.

RUTGERS

www.ijobs.rutgers.edu

Under construction, so please stay tuned for opening day

(Estimated) Trainee Time Commitments

	Phase 1	**Phase 2**	**Phase 3**
Pre-Doctorate	**Years 3-4**	**Years 4-5**	**Years 5-6**
Post-Doctorate	**Years 1-2**	**Years 2-3**	**Years 3-4**
Program Alumni	Participation and Mentoring		
Time Commitment	**52 hrs.+**	**~152 hrs.**	**TBD**

- **iJOBS programming: 12 hrs.**
- **SciPhD Leadership and Business Skills for Scientists Workshop: 40 hrs.**

- **iJOBS Track Classes: 80 hrs.**
- **iJOBS Externship: 72 hrs (1 day/ month)**

- **Resume Preparation**
- **Career Planning**
- **Career Fairs**
- **Job Interviews**

**Individual Development Planning
iJOBS Event Attendance**

Alumni Participation

- All Rutgers Biomedical and Life Sciences alumni are invited to participate in program events
- Alumni are encouraged to serve as trainee mentors, to host site visits and provide trainees with shadowing opportunities
- All events are open to alumni (some workshops on an audit basis and other events as participants)
- As the program matures, more directed programming will be developed to meet alumni's unique professional needs

Program Completion

- Trainees that complete required program elements will earn a "Certificate of Attestation".

- Required program elements are:
  - At least 12 hours of participation in Rutgers iJOBS programming
  - Completion of the SciPhD Leadership and Business Skills for Scientists Workshop
  - Shadowing
  - Completion of the Career Track Skill Classes

A Note to Faculty…

- Laboratory research is #1 priority
- PI approval required for participation in Rutgers iJOBS programming
- NIH's BEST grant provides for infrastructure support and no direct fellow funding.
- iJOBS curriculum nurtures trainee for overall increase in productivity
- Programming available to faculty

A Note to Faculty…

NIH Notice Number NOT-OD-15-008*, issued 10/10/14 states:

*"For non-Federal entities that educate and engage students in research, the **dual role of students as both trainees and employees contributing to the completion of Federal awards for research must be recognized in the application of these principles**."*

*Staff in postdoctoral positions engaged in research, while not generally pursuing an additional degree, **are expected to be actively engaged in their training and career development under their research appointments as Post-Docs**. This dual role is critical in order to provide Post-Docs with sufficient experience and mentoring for them to successfully pursue independent careers in research and related fields.*

Continuous Program Improvement
Workforce Data Analysis

- Characterize trends in workforce supply and demand as it relates to biomedical sciences PhDs.
- Analyze real-time jobs data, traditional labor market data, ethnographic case studies, group data gathering sessions.
- Meet with industrial hiring managers and use specialized databases (Burning Glass) for real-time labor market insights.
- Use this information to assess the iJOBS program and develop novel ideas in training and workforce development.

Continuous Program Improvement
Program Assessment

- NIH is providing awardees with a survey to be administered at baseline to all students and postdocs.
- NIH will track participants throughout the grant period and up to 15 years post grant.
- The Heldrich Center for Workforce Development will assess Rutgers' specific program components.
- Qualitative and quantitative data will be collected, program enhancements made and results published.

Continuous Program Improvement
Peer Communication and Benchmarking

- Collegial environment for sharing best-in-class program ideas
- Advisory board with regional academic representation
- Annual conferences with industrial representatives, regional universities and from the CIC (Big Ten)
- Presentations at national conferences
- Peer-reviewed papers and opinion pieces in leading education journals

Questions?