Faculty Research Welcome Packet

A toolkit with important information to assist you as you perform research at Rutgers University.

This information was gathered by the Research Development Team.
Updated 10/30/2020.

Table of Contents

Introduction

Welcome to Rutgers, The State University, where you are among the finest of colleagues, students, and staff. We are among America's highest-ranked public research universities, with research expenditures topping $730 million annually. Our 300 research centers and institutes—New Jersey's largest research network—generate innovation that impacts the world. At Rutgers, we have a strong track record of discovery—from finding a cure for tuberculosis to developing eco-friendly building materials, just to name a few. The achievements of our award-winning faculty drive Rutgers' world-class reputation. They teach, discover, provide healthcare, innovate, mentor, and share their knowledge. Leaders in their fields, their everyday endeavors yield brilliant outcomes.

This document has been developed to assist your introduction to Rutgers by offering information on common procedures, funding opportunities, school policies and important contacts.

SECTION 1: About the Office for Research

The Office for Research is here to ensure our faculty are able to pursue and receive funding that will further their research and its impact on communities. Led by David Kimball, Ph.D., Senior Vice President for Research, the office provides a pipeline of services across Rutgers to drive and support faculty research and strategically leads Rutgers' economic development activities.

Visit the Office for Research website to find research highlights, resources for faculty at each phase of the research lifecycle, and more: research.rutgers.edu

The Office for Research has many different units, each described below, to provide assistance to faculty seeking to perform research.

Research and Sponsored Programs

RSP staff assist faculty and departmental staff in navigating through the proposal submission and award set up process. Our grant specialists help interpret sponsor guidelines and application instructions, assist in budget development, and ensure that applications and incoming awards meet all compliance requirements. RSP also provides institutional sign off on proposal submissions, accepts incoming awards, executes a variety of grant-related agreements, and manages non-financial post-award activities.

Research Development

The Research Development Team promotes collaborative research across disciplines, schools, and institutions by assisting project teams with large-scale and multi-investigator proposal development. In addition, they lead and coordinate research development activities across all Rutgers campuses by hosting facilitator meetings and trainings. They coordinate limited submission opportunities, identify and disseminate information on funding opportunities, maintain the Pivot database, maintain a repository of successful proposals and template language for proposals, and assist faculty in finding suitable collaborators.

Sponsored Research Agreements

Sponsored Research Agreements mission is to foster mutually beneficial and strategic alliances between Rutgers and sponsors through professional and responsive review, negotiation, and management of contracts related to sponsored programs, basic research and clinical research, on behalf of Rutgers' researchers, serving as an official signing office and providing training to Rutgers' stakeholders, to advance Rutgers' mission of research, patient care, outreach and education. Contracts under their purview include: nondisclosure, material transfer, clinical, data use, research and research services agreements.

Grant and Contract Accounting

GCA performs central financial accounting for grants and contracts. They provide postaward administration support services for Rutgers' sponsored programs and other restricted funds, including the coordination of effort certification processes. Their services include financial reporting, invoicing and cash management, audit and award closeout, quality assurance and financial compliance, and training and development.

Innovation Ventures

Innovation Ventures is responsible for the strategic evaluation and protection of Rutgers' research intellectual property and licensing of innovative technologies to existing businesses or Rutgers' start-ups. Innovation Ventures encourages Rutgers' researchers to become deliberate innovators, and plays an integral role in generating value for Rutgers and enhancing local and national economic development by connecting researchers with entrepreneurs and industrial partners to bring transformative solutions to real-world problems.

Animal Care

Rutgers Animal Care is comprised of the Genome Editing Core, In Vivo Research Services, IACUC Office, Controlled Substances in Research, and Comparative Medicine Resources. Animal Care works closely with the Rutgers Institutional Animal Care and Use Committees (IACUC) to provide the highest quality animal care and veterinary oversight of our research animals in support of this commitment to humane animal research. We provide a comprehensive program of animal care including protocol review, a duly-constituted animal care committee, occupational health and laboratory safety, and full-time veterinary care.

Research Regulatory Affairs

Research Regulatory Affairs oversees the conduct of research at Rutgers University to promote integrity of the scientific record, including training and certification as appropriate. They administer the following functions: Human Subjects Protection Program (HSPP & IRBs), Export Control (EC), Research Integrity (RI) and Conflict of Interest (CoI).

Biomedical Research Innovation Cores (RUBRIC)

RUBRIC bridges the gap between basic and interdisciplinary preclinical research for Rutgers faculty. Professional staff help faculty create translational data for more competitive biomedical grant submissions, and increase collaboration with the private sector. RUBRIC enable data generation for grant applications and publications, interface between Rutgers and the private sector, and bolsters the success of NJ biomedical companies. See page 20 for RUBRIC's research capabilities.

Advanced Research Computing

The Office of Advanced Research Computing (OARC) is a university-wide unit that is developing and implementing a bold strategic vision for a centralized advanced research computing and data cyberinfrastructure (ACI) ecosystem at Rutgers. OARC is uniquely situated at Rutgers,

reporting directly to both the Office for Research and the Office of Information Technology (OIT), which makes the department well-suited to advocate for the faculty's research computing, data, and networking needs. OARC was established with the goal of providing Rutgers' researchers with essential computing, networking, storage, and data handling capabilities, and students with necessary exposure and training, through centralized resources, services and training.

Corporate Engagement Center

The CEC plays three main roles at Rutgers. Its roles include being an obvious front door into Rutgers for a company, developing and structuring industry partnerships for Rutgers' faculty and other internal groups, and keeping a pulse on what is happening on campus that would be relevant to a company and the relationships that companies already have at Rutgers. For faculty, the CEC provides support with industry collaborations in many ways, including: finding collaborators or soliciting for letters of support for government grant submissions; advising on structuring cooperative partnerships; developing, organizing and managing industry visits; proposal editing for industry RFPs; etc. The best way to work with the CEC is to email the Associate Vice President.

Foundation Relations

Although not part of the Office for Research, Foundation Relations works closely with the Office for Research on foundation sponsor opportunities. Foundation Relations is part of the Rutgers University Foundation. The team works with faculty, staff, and administrators from across Rutgers to attract philanthropic support from foundation sources for the university's priority projects, programs, research, and more. Faculty members can reach out to the Foundation Relations team to request help finding the funding you need to do the work you love.

SECTION 2: Resources

Find Funding

The search for sponsor information is the first step toward external funding success.

Rutgers faculty have the following resources to help them find relevant funding opportunities:

- Featured Funding Opportunities [curated list](#)
  - This is a curated list created by staff from the Rutgers Foundation, the Corporate Engagement Center, and the Research Development team
- Limited Submissions Opportunities [curated list](#)
  - This is a list of limited submission opportunities that Research Development has identified. The list includes the internal deadline and links to apply directly through the InfoReady portal.
- Office of the Senior Vice President for Academic Affairs [Awards list](#)
  - This is a list of awards coordinated by the SVP for Academic Affairs.
- [Pivot](#)
  - A funding opportunities database available to faculty, staff, and students.
  - Please see Appendix 1 for a detailed guide to using Pivot
- [Grants.gov](#) database of federal funding opportunities
- [National Science Foundation](#) funding search

In addition to checking the above sources periodically, sign up for funding alert emails such as:

- [Funding Opportunity Emails](#) from Research Development which are sent out monthly and as major funding opportunities are identified
- [Featured Funding Opportunities Email](#) this email goes out monthly and is coordinated by the Rutgers Foundation
- [The Office for Research Newsletter](#) a biweekly newsletter with research news, upcoming events, and featured funding spotlights
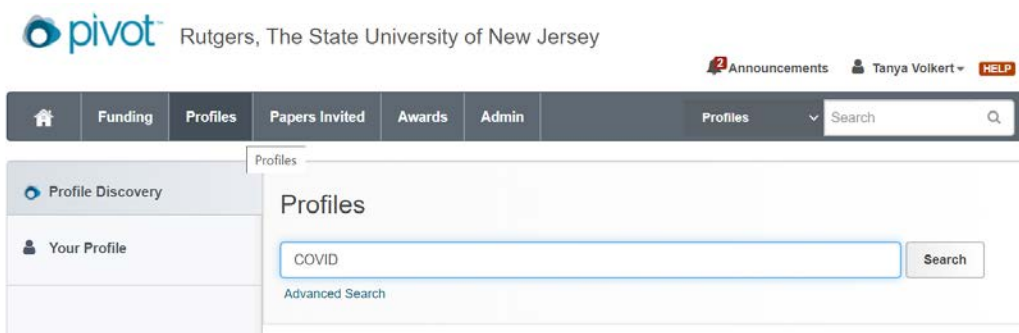
Find Collaborators

Thousands of Rutgers' researchers are engaged daily in the deep and thoughtful task of investigation. If you are looking to collaborate through a research partnership, Pivot is a useful tool to begin your search.

Pivot is a database accessible to all Rutgers faculty, staff, and students. In addition to funding opportunities, Pivot incorporates scholarly profiles for faculty members at Rutgers and throughout the United States.

See Appendix 1 for how to create your Pivot account, claim your profile, and to customize your profile, if desired.

Find Collaborators by searching the Profiles Tab. You can narrow down the results by searching for specific roles and departments.

You can also find potential collaborators when viewing a specific funding opportunity by looking at the righthand sidebar where Pivot will suggest Potential Collaborators.

Proposal Development and Submission

Ready to develop a proposal?

Visit the [Research Portal](#) for resources to help you craft a strong proposal.

There you will find the Proposal Support Repository (PSR). The PSR includes grant toolkits and sample documents for NIH proposals, NSF proposals, Foundation and Corporate proposals, as well as frequently requested documents and data on Rutgers.

The Office for Research's Research Development (RD) team also provides proposal development services to support strategic, large-scale grant submissions. RD will provide this support for development and submission of major grant proposals that meet the eligibility requirements and have the potential to substantially increase the RU research portfolio or enhance the research infrastructure. Generally, RD-supported projects involve multidisciplinary teams and have funding limits in excess of $750,000 in direct costs per year.


Ready to submit your proposal?

Find your grant specialist [here](#).

The Board of Governor's has delegated authority for approval and submission of proposals to federal, state, not-for-profit and other non-corporate sponsors, to Research and Sponsored Programs (RSP). All proposals to Federal and State agencies, industry and business entities, foundations and nonprofit organizations, educational institutions, and other external organizations require institutional approval prior to submission to an external funding agency.

All administrative items are required in their final version with placeholders for the final science by 12pm noon five business days before the sponsor deadline. The proposal in its final form for submission to the sponsor, including the final science, is due by 12pm noon two business days before the sponsor deadline. Once ORSP reviews the proposal, the Grant Specialist may request changes to the administrative and/or scientific components of the proposal in line with all Rutgers and sponsor policies. All changes

requested by ORSP must be completed and returned to ORSP no later than 9am Eastern Time on the day of the sponsor deadline.

The Rutgers Process for proposal development and submission is pictured below.
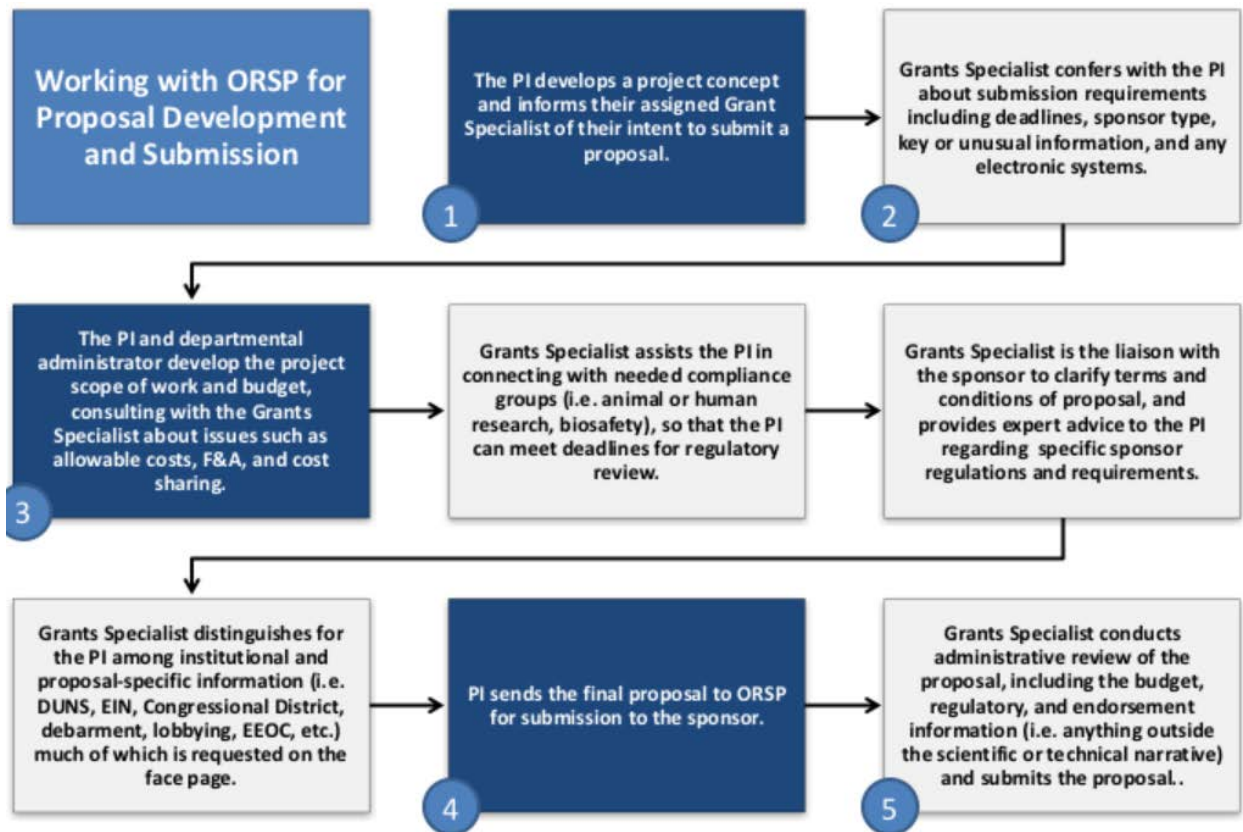
More information on this process can be found here.

How to submit?

All proposals must be submitted through RAPSS. The Research Administration and Proposal Submission System (RAPSS) is an electronic gateway for the submission, review, approval and tracking of funding proposals and related budgets for research at this institution.

The Office for Research coordinates RAPSS training for faculty and staff who will use the system. Access information about training and sign up for a session here. In addition to training sessions, a series of quick reference guides are available. Find them here.

Compliance Resources

Human Subjects

The Human Subject Protection Program (IRBs) provides required approval for studies which fall under the category of Human Subject Research. To determine if your study is Human Subject Research, please see their [website](#) for more information.

Animals

The Institutional Animal Care and Use Committee (IACUC) serves a vital function in the research and teaching conducted at Rutgers by ensuring that all research programs and teaching meet the highest standards of science, safety, service, and humane care. See their [website](#) for information.

Export Control

Don't be surprised to learn that you may already be an Exporter! Have you ever travelled internationally for research? Have you collaborated with a foreign national in the USA or abroad? Do you work with foreign nationals, in-person or remotely? These are only a few of the many activities which may cause you to export to a foreign country even if it is done unintentionally.

Export Control Regulations require that all US Persons including all members of Rutgers University, prevent the export (sharing) of certain materials and information with certain foreign persons, unless a license (permission) from the U.S. Government is obtained, or an exclusion applies. Rutgers Export Control will assist you in determining what activities you have that may require an export license or a Technology Control Plan (TCP).

See their [website](#) for information.

Financial Conflict of Interest

Rutgers University Investigator Conflict of Interest Policy 90.2.5 requires that PIs and all personnel working on research projects, regardless of source of funding or lack thereof, disclose financial information that may reasonably be perceived to influence their work. See their [webpage](#) for information.

Lab Safety

Rutgers Environmental Health and Safety (REHS) provides comprehensive and professional health, safety, and environmental services to the entire Rutgers community. Their programs and services are implemented to protect all members of the Rutgers community, protect the natural environment of our campuses, surrounding communities and the state, and to promote compliance with applicable regulations. See the REHS [website](#) for information.

Radiation Safety

The Radiation Safety Group as part of REHS provides information on their [webpage](#) for investigators.

Research Integrity

The responsible and ethical conduct of research is critical for excellence as well as public trust in scientific and other scholarly endeavors. Rutgers, The State University of New Jersey, is committed to a culture of Responsible Conduct of Research (RCR). Our Department provides [required training](#) in the Responsible Conduct of Research; information on [reporting research misconduct](#), and the [Rutgers Responsible Conduct of Research Toolkit](#). In addition to ensuring compliance with federal guidelines, these resources are provided to help strengthen the scholarly commitment of all who do research at Rutgers. Visit RRA's [webpage](#) on research integrity.

Award Management

Grant and Contract Accounting (GCA) will be your main point of contact for award management and closeout.

The principal investigator (PI) serves as the primary individual responsible for the scientific integrity and fiscal and administrative management throughout the period of the award. Some of the PI's specific post-award responsibilities include the following:

- Be cognizant of and adhering to all sponsor-imposed terms and conditions, as well as university policies and procedures.
- Obtain approvals to request all required prior approvals from the sponsor for post-award changes.
- Supervise project personnel.
- Certify all effort cards and time reporting sheets.
- Submit technical or programmatic progress reports.
- Manage and controlling project funds.
- Advise GCA of any information on the financial instability of the sponsoring agency.

While responsibility for certain day-to-day management of the project finances may be delegated to administrative or other staff of the PI, accountability for compliance with the sponsor requirements and university policy ultimately rests with the PI.

You can find the policies and resources for award management here: postaward.rutgers.edu.

Award Closeout

Grant and Contract Accounting (GCA) will be your main point of contact for award closeout. Award closeout is the final reconciliation and reporting of expenses and activities. This involves reviewing project expenditures, resolving open commitments, collecting subrecipient documents, and preparing required final reports and deliverables for submission to the sponsor.

During Award Closeout the principal investigator (PI) bears the responsibility to:

- Review GCA's account reconciliation detailing the final expenditures and award balance to verify accuracy of the final Financial Report/Invoice. Submit any adjustments to GCA, including those related to unallowable, questionable, or overdraft expenditures.
- Prepare and submit any required Scientific/Technical Reports or Milestone Deliverables to the sponsor. GCA does not require a copy of the PI's Final Technical Report. However, GCA does require either a copy of the transmittal letter to the sponsor, or notification by the PI/department that the final technical reports/deliverables have been submitted to the agency.
- Complete any required forms related to Invention and/or Property Statements and send to GCA for review. Reach out to GCA in order to obtain sponsor-specific templates if necessary.
- Provide GCA with the PI's approval confirmation of the final account balance, completion of all contractual commitments, and submission of all reports required by the sponsor.

See the Department Checklist for Award Closeout (appendix 3) for a list of action items that need to be completed at this time. Additional information regarding the roles and responsibilities for principal investigators, departmental and central office staff in post-award management are outlined in the Roles and Responsibilities Matrix available in the Quick Links at https://orsp.rutgers.edu.

Commercialize Your Innovation

Innovation Ventures can help faculty at all steps of the commercialization process. See the below resources or contact our team.

Find Funding

Innovative, early-stage research often requires financial and business development support to advance them towards commercialization.

- Rutgers TechAdvance®
- Rutgers HealthAdvance®
- External Commercialization Funding

Disclose Your Invention

Innovation Ventures is dedicated to helping you transition your technologies and copyrighted materials from research to commercial viability.

- Submitting a Disclosure
- Technology Assessment of Inventions and Software and Copyrighted Works

Protect Your Idea

Intellectual property is an intangible asset that has financial value and is protected through patent, copyright, trademark, and trade secret laws. Partner with our team to protect your ideas and learn more about the licensing process.

- Intellectual Property 101
- The Licensing Process

License and Commercialize

- Marketing to Find a Licensee
- Licensing and Commercialization Overview
- Industry-Sponsored Research

Launch a Startup

Startups can be an exciting and rewarding path to commercializing an innovation. Partner with our experts to navigate the course.

- Step-by-Step Guide for Rutgers Faculty
- Investor Presentation: Dos and Don'ts
- Conflict of Interest Guidelines and Review
- Entrepreneur-In-Residence Program

RU CORE Facilities

All research faculty at Rutgers have access to a wide range of modern scientific instrumentation across the university. Spanning disciplines as diverse as life sciences, public health, and engineering, the Rutgers core facilities provide a strong interdisciplinary collaborative research network, with many opportunities to utilize the Rutgers' specialized facilities, technologies, services, and expertise.

Find the right resources for your work by browsing the research cores list on the Cores Facilities Website.

Rutgers University Biomedical Research Innovation Cores (RUBRIC)

RUBRIC bridges the gap between basic and interdisciplinary preclinical research for Rutgers faculty. Professional staff help faculty create translational data for more competitive biomedical grant submissions, and increase collaboration with the private sector.
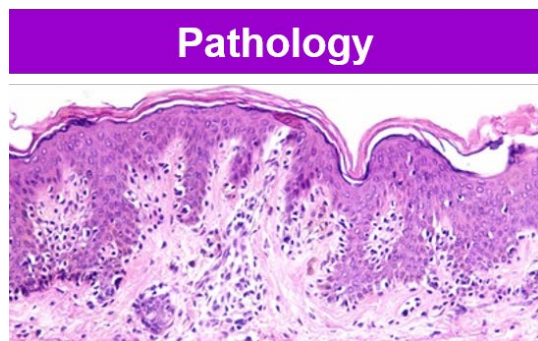
Visit orc.rutgers.edu/rubric to learn more.

Research Capabilities

Chemistry

The molecular Design and Synthesis Laboratory focuses on the preparation of small molecular probes of new biology.

Imaging
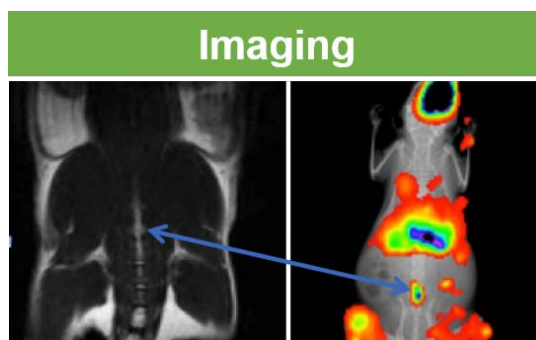
The molecular Design and Synthesis Laboratory provides non-invasive approaches to study biological and disease models in living systems and ex vivo organs.

Pathology

The Research Pathology Services team supports research in animal models of human disease by providing histology techniques and veterinary pathology services.
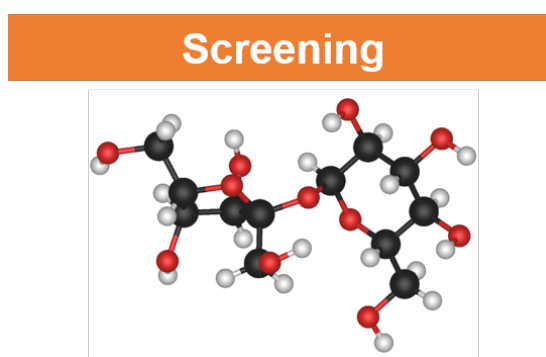
Screening

Screening Collaborations with several partners are currently under development.

Science Communication Initiative

The Rutgers Science Communication Initiative seeks to address the pressing need for communicating science effectively to a range of audiences through teaching, research, training, and outreach. The Initiative recognizes that science communication is everyone's role—we need to be able to understand evidence, understand the scientific process, and use this knowledge to change how we interact with the world around us.

The Science Communication Initiative offers classes across various Rutgers schools, a science communication minor at SEBS, as well as workshops, seminars, and continuing education courses for faculty, staff, and external professionals.

Improv to Improve

One of the initiative's recurring workshops is *Improv to Improve*. This workshop is put on for departments or groups by request and focuses on how to communicate science and research accurately, effectively, and understandably to diverse audiences.

The workshop teaches how to: identify the essential message that defines your research, recognize the diverse audiences you speak to about your research, engage your audience and tell them why they should care about your research, speak clearly and vividly in language your audience will understand.

Please see the Workshop Flier (Appendix Item 4).

To stay informed about science communication and learn more, sign up for their mailing list here:
https://email.rutgers.edu/mailman/listinfo/scicomm_initiative

Visit their website: https://scicomm.rutgers.edu/

Published Guides and Workbooks

See below for a list of published books and guides on preparing proposals, papers, and presentations. You may find these resources useful as you begin to write proposals and applications.

New Faculty Guide to Competing for Research Funding	Free	link
The Grant Application Writer's Workbook	$90	link
NIH RO1/NSF Grant Application Mentor: An Educational How-to Manual	Free online	link
Funding Your Research in the Humanities and Social Sciences: A Practical Guide to Grant and Fellowship Proposals	$32	link
Writing the NIH Grant Proposal	$48	link
Research Proposals: A Guide to Success	$50	link
A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant	$32	link
The Chicago Guide to Your Career in Science: A Toolkit for Students and Postdocs	$20	link
Guide to Effective Grant Writing: How to Write a Successful NIH Grant Application	$40	link
How to Write and Publish a Scientific Paper, 8th ed (Chapt 37)	$25	link
Scientific Papers and Presentations	$30	link
Designing Science Presentations: A Visual Guide to Figures, Papers, Slides, Posters, and More	$35	link

Support and Contacts

We hope this orientation packet has provided you with helpful information to get started. As questions arise however, the Office for Research team is happy to help. Please use the following contacts as needed:

Finding Funding		
Limited Submissions	Tanya Volkert	848-932-4630
Pivot Database	Research Development	848-932-4630
Research with Rutgers	RWR-support@rutgers.edu	
Corporate and Foundation Relations	cfr@winants.rutgers.edu	848-932-7777
Proposal Development		
Grant Specialists	NB and Piscataway Newark Camden RBHS	
Research Development Support Services	Research Development	848-932-4630
Innovation Ventures	Meet Our Team	(848) 932-4455
Research and Sponsored Programs Main Office		848-932-0150
RAPSS Support	RAPSS Help Desk	
Corporate Engagement	Sacha Patera	
Sponsored Research Agreements	Melissa Matsil	848-932-4458
Compliance		
Research and Regulatory Affairs	General Inquiries	732-235-6081
IRB	Human Subject Protection Program & IRBs	732-235-9806 973-972-3608
IACUC	NB and RWJMS Newark	732-235-6081 973-972-2486
Export Control	Robert Phillips	848-932-4528
Conflict of Interest	General Inquiries	732-235-8682
REHS	Contact List	848-445-2550
Occupational Health Department	Website	848-932-8254

Employee Health Services	RWJMS	848-445-0123
Occupational Medicine Services	NJMS	973-972-5672
Report Research Misconduct	Glenn Krell	732-235-7004
Submission		
Research and Sponsored Programs	Main Office	848-932-0150
Request Institutional Support Letter	Research Development	
Proposal Submission	RAPSS Support	
Award and Project Management		
Research and Sponsored Programs	Main Office	848-932-0150
Grant and Contract Accounting	Main Office	848-932-0165
University Libraries	NB and Piscataway Newark Camden RBHS	848-932-6000 973-353-5901 856-225-6034 973-972-4580
Completion		
Grant and Contract Accounting	Main Office	848-932-0165

SECTION 3: Appendix Items

Appendix 1: Getting Started with Pivot

Already have a Pivot account? • Great! Pick up right where you left off by logging on here: pivot.proquest.com	**Login using your Pivot Account** User: @rutgers.edu Password: Enter password Forgot Password? Help **Login** or signup

New to Pivot?
 	
• Create your account on pivot.proquest.com
• Select "Sign up" in the upper right corner
• Select "Use Email Address/Create Password"
• Fill in the required fields
    o Use your Rutgers email address
    o Select Rutgers, The State University of New Jersey from the Institution pull-down menu
• Select "Create my account"
• Open the confirmation email sent by Pivot
• Click the link to authenticate your account
• You are now ready to start using the advanced search, set up saved searched, and receive targeted emails!
	Use Institutional Login Credentials OR **Use Email Address/Create Password**
	
	Log in with your email address and create a unique password
	
	Use your institution/university email address. This will be your User ID.
	Create a password and select your institution from the member institution drop-down list.
	All fields required.
	
	Name
	First Middle Last
	
	Institution Email
	
	Password
	
	Re-enter password
	
	Affiliated Member Institution
	Rutgers, The State University of New Jersey

Claim Your Profile

- Claiming and keeping your profile updated enables better funding opportunity matching. It also increases visibility for you and your institutions, so you are more easily discovered by other users and potential collaborators
- Once you are logged in look for "Claim Profile" in the upper right-hand corner
- Pivot will generate a list of profiles that might be you
- Search through the list to find your profile
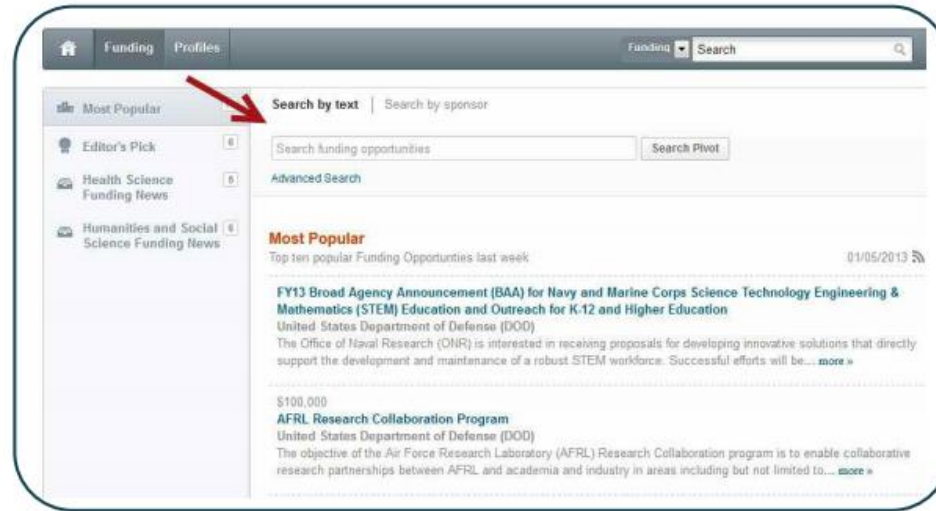- Click the "This is me" button
- You are all set!

Edit Your Profile

- Pivot pulls data from online sources to build your profile but there may be additional information that you want to add
- To edit your profile information click on your name at the top of the page
- Select "My Profile"
- From your profile select "Edit Profile"
- Look for the Edit and Add Symbols to make changes to the fields

Start a Basic Search
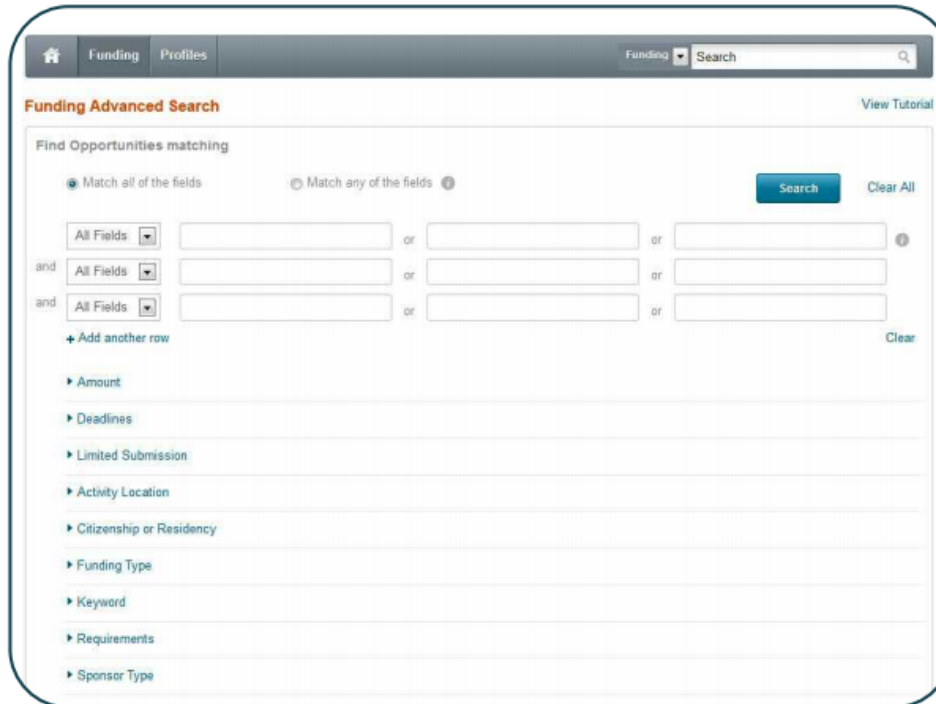
- Go to the Funding tab
- Use the textbox to search by text, sponsor, or keyword
- Use the filters to the left to narrow down your results

Perform an Advanced Search

- From the Funding tab, hit Advanced Search
- Now you can search by multiple fields and set your filters before you search
- You can still use the filters on the left on the results page to narrow down your search even more

Save Your Search • If you have set up your search criteria and filters just the way you want them you can save your search so you never have to take the time to set the search up again • At the top of your results screen you should see "Save Search" • Give your search a name • Do you want to weekly emails with new opportunities that fit your search? Select the check box and you're all set	
Share Your Search • Once you have saved a search you can share it out to anyone else with a Pivot account • From the Home page, select "Saved Searches" • Click on the "Options" Button • Select "Share" • Enter the email address of the person(s) you would like to send it to • Include a message if you'd like • Click "Send"	
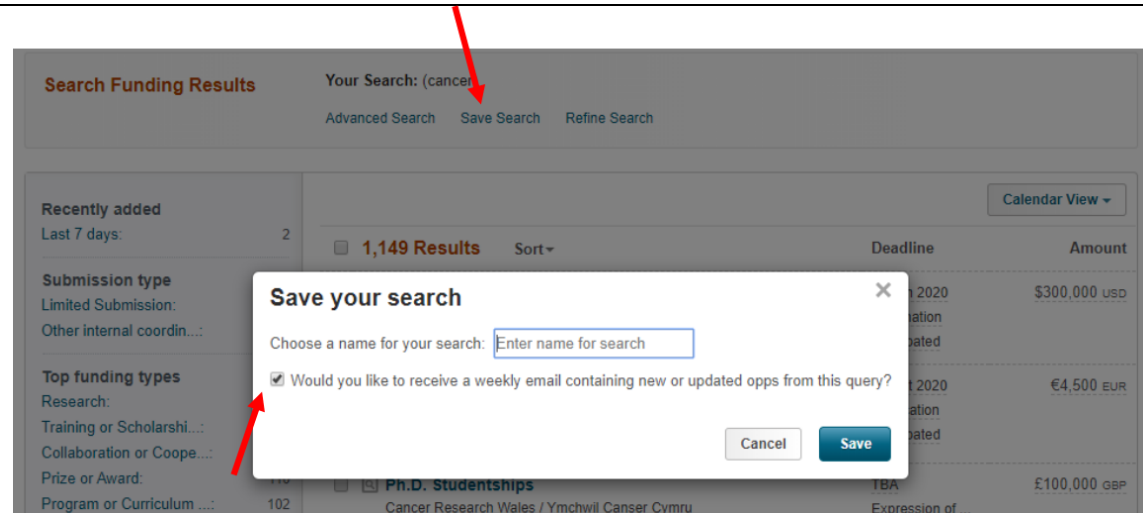
Share An Opportunity
 	
• There are many ways to share funding opportunities!
• Share from the opportunity
   o Once you have opened the opportunity there will be a list on the right-hand side of actions you can take
   o Select "Share"
   o Enter the email(s) you want to send to, add a message, hit "Send"	

- Share from the search results list
  - Select the checkboxes next to the opportunities you want to send
  - Chick "Share" from the top of the list
  - Enter the email(s) you want to send to, add a message, hit "Send"
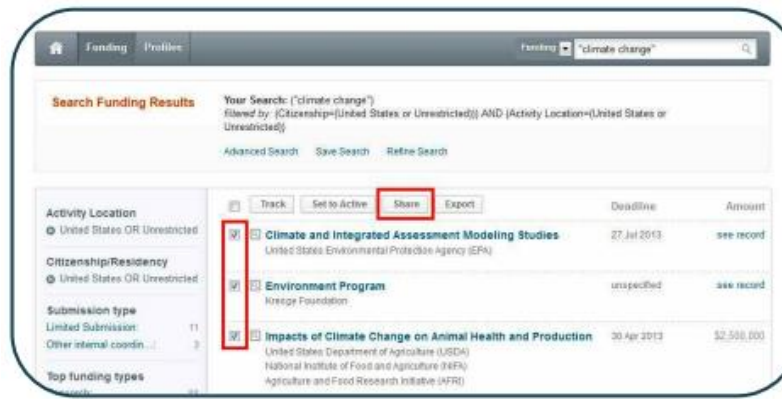
Evaluating Your Idea:

A. The following questions are a tool that will help you flesh out an idea and assess it so that you either have a place to start from or know that a new direction is necessary. It is a starting point to test your readiness to write a grant proposal, compliments of Robert Porter of Virginia Tech. Each answer should be limited to 25 words or less

1. What are you passionate about? (In terms of research)

_____
_____
_____
_____

2. What is the problem (or need) and why is it important?

_____
_____
_____
_____

3. How is existing knowledge or practice inadequate?

_____
_____
_____
_____

4. Why is your idea better?

_____
_____
_____
_____

5. How is it new, unique, different?

_____
_____
_____
_____

6. What will it contribute and who will benefit from it?

_____
_____
_____
_____

B. **The Pitch.** What key themes can you stress in building the "pitch" for your proposal?

_____
_____
_____
_____

C. **Goals and Objectives.** Write a goal statement for your proposal.

_____
_____
_____
_____

Construct a specific, **measurable** objective for your proposal.

_____
_____
_____
_____

D. **Goals and Objectives.** The NIH application instructions call for a Research Plan that begins with a section labeled "Specific Aims," which should include: a) **a statement of the long term goals of the proposed line of research; b) a specific, testable hypothesis for the proposed project; and c) 2-4 specific aims, each stated concisely in a single sentence.** The specific aims (research objectives) are to be cohesive, logically consistent, and capable of testing the stated hypothesis.

Given these guidelines, evaluate the effectiveness of the following excerpt from a proposal recently submitted to NIH. What are the strengths and weaknesses? Would you fund this proposal?

Proposal Excerpt: "Histopathology and Clinical Assessments of Visual Systems in Alzheimer's Patients"

RESEARCH PLAN

Section A. Specific Aims

Alzheimer's disease (AD) is a dementing disorder of unknown etiology. The diagnosis of "presumed" or "probable" AD is made through clinical diagnosis, in recognition that AD can only be definitely diagnosed histopathologically. Characteristically, memory is initially impaired, followed by visuo-spatial deficits, and finally, involvement of all cognitive functions.
We hope to address a number of Specific Aims by the completion of this project:

1. *Is there a selective involvement of a particular component or class of cells in the visual system of AD patients? If so, can this be related to the pathophysiology in the rest of the brain? If there is a predilection for loss of class of ganglion cells in AD, this may yield insight to the reasons for predominant degeneration of large neurons in other areas of the brain (Terry et al., 1981)*
2. *Can visual testing be used, in conjunction with present neurological and psychometric evaluations, as a screening procedure to identify AD?*
3. *Can visual testing or histopathological assessments of the visual system be used to identify subtypes of AD? If so, this might provide insights leading to possible management and treatment strategies for AD.*
4. *We will gain insights into both anatomical and functional AD subgroups through correlative histopathological and clinical assessments of the visual system in the age-matched controls (normals) used in this study.*
5. *Significant new data relevant to the effect of age on the visual system will be gathered.*

Notes:

_____

_____

_____

_____

E. **Visualization Exercise**

Read the Proposal Summary of the "HOPE Program Expansion Proposal." Draw a picture of the project's basic concept.

HOPE PROGRAM EPANSION PROPOSAL

Visualization Exercise: Draw a picture illustrating the proposal's overall concept.

Proposal Summary

For over a decade, The HOPE Program has intervened in the lives of homeless and unemployed men and women who indicate that they can achieve self-sufficiency if given appropriate training and support. Founded in 1984 at a time when most homeless programs provided only emergency assistance, HOPE began to address the underlying causes of homelessness with a comprehensive strategy of support and education to promote economic independence and participation in mainstream society.

At the heart of HOPE's program is an intensive 14-week *Job-Readiness Training* program which offers on-going counseling and work internships, with educational an computer instruction at our new *Literacy Center*, and follow-up activities for graduates to help them succeed in the work world. The HOPE method yields remarkable results: 67% of our students secure employment or enroll in continuing education programs within six months of their graduation and 68% of our graduates are still employed after two years.

We are now seeking at $20,000 grant from the Frances L. & Edwin & Cummings Memorial Fund to support our efforts to replicate our program in underserved communities in New York City. Specifically, given HOPE's growing reputation for providing an exceptionally effective and innovative model of intervention for the homeless and unemployed, we are now receiving a large number of replication inquiries from social service agencies both within and outside New York City. One replication project was launched successfully just last year at Genesis Homes in East New York. Funding would support the New York efforts of our recently established Replication and Technical Assistance Team (R&TA), which is devoted to training other agencies in our methods, as we continue to evaluate and improve our own program model.

HOPE Program Expansion Proposal
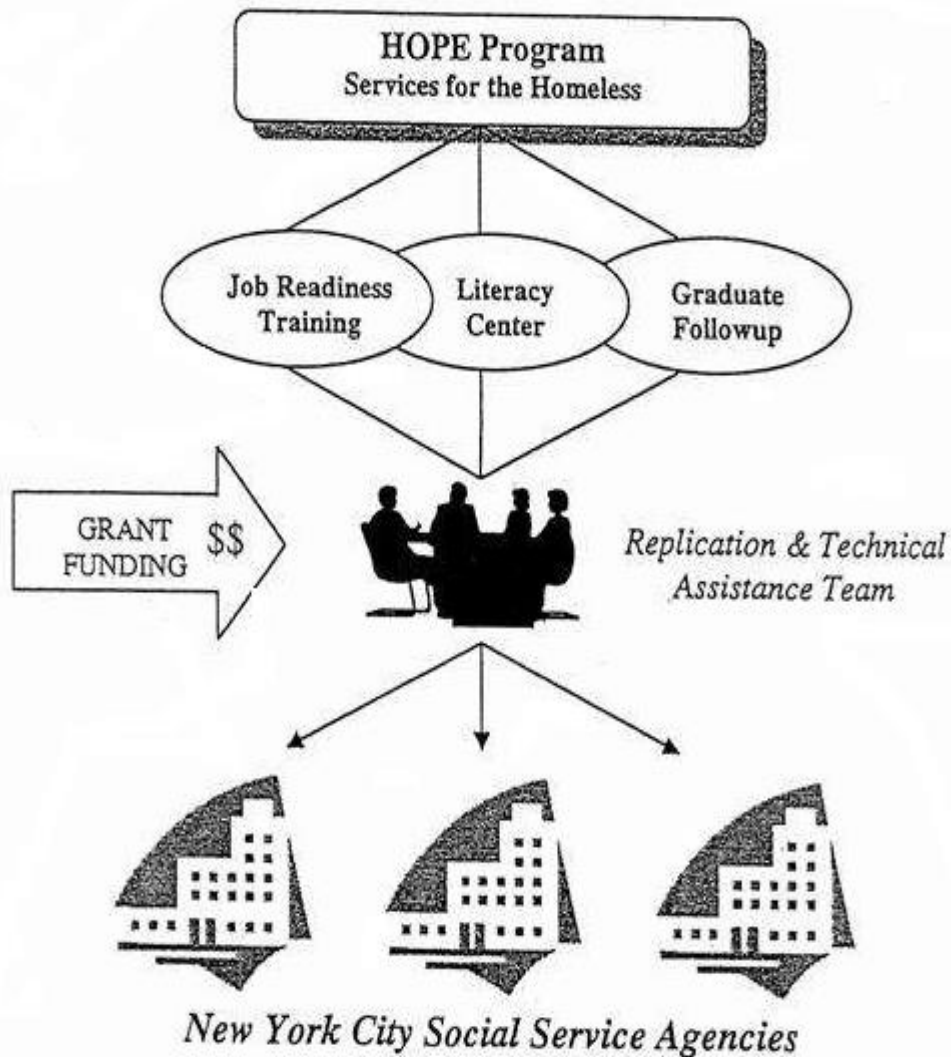
Department Checklist for Award Closeout

Principal Investigator:_____   Department:_____
Rutgers Account/Index Number: _____   Checklist Prepared By: _____
Award Expiration Date:_____   Checklist Completion Date:_____

Carefully read the award agreement and all terms and conditions. Some agreements have special terms related to financial/technical reporting, final close out, equipment or inventions. Any questions or requests regarding final closeout should be directed to DGCA and/or ORSP, as appropriate.

Please complete the following action items in preparation for final closeout of the account/index:

Finalize Expenditures (Immediate Actions before the Account Expiration Date)

- ❐ Payroll Allocations: Move all payroll allocations to the appropriate account.
- ❐ Subcontractors/Consultants: Confirm that all interim and final invoices and deliverables from subcontractors and/or consultants have been collected and processed.
- ❐ Commitments: Process all open commitments and cancel remaining balance for invalid commitments. Confirm direct disbursements are documented/allocated to the correct expense category.
- ❐ Travel: Verify that all travel expenses are processed and zero out pending advances.
- ❐ Tuition: Contact DGCA to finalize any pending requests for tuition remission transfer.
- ❐ Other: Finalize all other expenses, such as FedEx, E-Zpass, or Gas Cards expenses.
- ❐ Associated Accounts: If any associated accounts exist, including Cost Share or Program Income accounts, verify all expenses have been charged to these accounts and include these figures in the final closeout.
- ❐ Project Accounts: If there are any project accounts outside your department, please coordinate with the respective departmental managers to confirm the accounts are also in process of final closeout.
- ❐ Non-Financial Reports: Verify all progress and/or technical reports and deliverables have been submitted.

Reconcile Account (Actions upon receipt of the DGCA account reconciliation)

- ❐ Adjustments: Review the account reconciliation provided by DGCA:
  - o Validate accuracy of expenses including F&A rate, fringe rate, and gift assessment fee calculations.
  - o Process any adjustments and provide DGCA with backup documentation for final reconciliation.
- ❐ Balance/Overdraft: Coordinate with DGCA to determine the final closeout amount, including as applicable:
  - o Transfer of any unauthorized/overdraft expenditures off of the account.
  - o Request for carry-forward balance to the following year.
  - o Request for residual funds balance to be transferred to a residual account.
- ❐ Cost Sharing: Validate accuracy of all cost sharing. Zero out the state and non-state cost sharing accounts.
- ❐ Program Income: Closeout any program income accounts. Finalize balances for transfer to the following year.
- ❐ Closeout Report: Compile completed award file information for archive, including: Proposals, Endorsement Forms, Award Notices, Correspondences, Expense/Cost-Transfer Documentation, Final Account Reconciliation

Complete Follow-Up (Actions for final closeout completion)

- ❐ PI Approval: Obtain PI's confirmation of (1) the final account balance, (2) completion of all contractual commitments, and (3) submission of all reports required by the sponsor via PI response to the Final Confirmation Email from DGCA.
- ❐ Archive Account: Archive the account once it is zeroed out (budget = expenses = cash received). Confirm that:
  - o Final adjustments correctly posted, including: JEs, SWRJs, pending invoices, etc.
  - o Carry-forward/residual balances were transferred to the appropriate accounts.
  - o Unauthorized/overdraft balances were transferred off of the account.
  - o All deliverables and reports/invoices were received and paid by the sponsor.
  - o Closeout Report contains complete documentation of proposals, forms, notices, correspondences, expenses, and final reconciliation.

Tips for Submission to NSF

Where to Submit?

NSF is committed to replacing FASTLANE, their current portal for electronic proposal submission and other sponsored programs related activities with RESEARCH.GOV.

Right now, those submitting a proposal can continue to use FASTLANE for submissions. In fact, not every opportunity is supported by RESEARCH.GOV so some users will still have to utilize FASTLANE. However, in the coming months, NSF plans to process more opportunities through RESEARCH.GOV and are anticipating that they will methodically require submission through RESEARCH.GOV (rather than FASTLANE) in an effort to retire FASTLANE. Therefore, it is a good idea to familiarize yourself with RESEARCH.GOV if you plan to submit proposals to NSF. Investigators can familiarize themselves with Research.Gov through their demo site available [here](#).

Guidance on Approved Formats

Beginning on October 5, 2020, all researchers submitting proposals to NSF must us an NSF-approved format for their biosketch and current and pending support documentation.

There are two approved formats:

- SciENcv
- NSF fillable PDF

Current and Pending Support documents not in an NSF-approved format will trigger a compliance error preventing document upload and submission of the applications or project reports.

Some tips for researchers:

- DO NOT alter the NSF fillable PDF form (e.g. changing fonts, altering margins or rearranging the content) or delete pages of the form.
- If you use SciENcv, the form is automatically generated. With SciENcv, you can link to PubMed and/or ORCID to help populate the form. You can also have more than one CV in SciENcv.
- The complete lists of FastLane and Research.gov automated proposal compliance checks effective October 5, 2020, are available on the Automated Compliance Checking of NSF Proposals website.

Need more information?

- The NSF Current and Pending Support website includes additional information as well as links to system-related Frequently Asked Questions (FAQs) for both NSF-approved formats.
- NSF policy-related FAQs related to current and pending support
- NSF PAPPG (NSF 20-1) webinar
- NSF-Approved Formats for the Biographical Sketch & Current and Pending Support Sections of NSF Proposals webinar
- NSF Current and Pending Support Video Tutorial
- NSF-specific Bookshelf Resource (includes screenshots and step-by-step instructions)
- Contact your grant specialist if you need additional guidance.

Tips for Submission to NIH

How to Apply - Application Guide

The [NIH Application Guide](#) is a great resource for faculty who are planning on submitting applications to NIH. The Application Guide includes information for every step in the process from understanding roles, developing the elements of the proposal, to submission policies.

Submission Systems

There are two main systems involved in the NIH grant application process - Grants.gov and eRA Commons. Each system has its own registration, terminology and business rule requirements.

- **Grants.gov** - The on-line portal used by all federal grant-making agencies and their applicants to find and apply for federal grant funding.
  Agencies post funding opportunity announcements on Grants.gov. Applicants can search for opportunities and submit grant applications to Grants.gov. Grants.gov forwards the applications to the appropriate agency (e.g., NIH) for processing and funding consideration.

- **eRA Commons** - A system managed by NIH that allows applicants, grantees and federal staff to securely share, manage and process grant-related information.
  eRA Commons is used for a number of pre-award tasks: tracking application submission status; viewing how an application has been assembled in the format used for review; accessing correspondence from referral staff; obtaining referral information; accessing review outcome information (summary statement, score); and, submitting just-in-time information after review.
  eRA Commons is used after award for additional administrative tasks: viewing the Notice of Award (NoA) and other key documents; submitting financial conflict of interest information; submitting financial and progress reports; and submitting final closeout documents.

Foreign Component

Research activities may include the effort of or resources from a foreign individual or entity. The NIH defines a foreign component as, "the performance of any significant scientific element or segment of a project outside of the U.S. either by the NIH award recipient or by a foreign organization, whether or not grant funds are expended."

Foreign components must be identified in research proposals, progress reports, and final technical reports, and require prior approval from the NIH. Foreign components may include activities such as:

- Collaborations at a foreign site anticipated to result in co-authorship
- Use of facilities or instrumentation at a foreign site
- Receipt of financial support or resources from a foreign entity in connection with performance that occurs at a foreign site
- Extensive foreign travel for the purpose of data collection, surveying, sampling, and similar activities

In NIH grant application forms, a foreign component may be identified by:

- Indicating "yes" to the "activities outside the US/partnerships with international collaborators" checkbox on the Research & Related Other Project Information form;
- Listing a non-US project/performance site location;
- Identifying foreign relationships/activities in the biosketch; and
- Identifying foreign financial support in the Other Support documentation.

For more information, visit the NIH FAQs on Foreign Components.

Other Support

The NIH notes that "Other Support" includes all foreign and domestic resources made available to a researcher in support of or related to their research, regardless of whether or not the resources have monetary value. Examples of other support include Rutgers University internal funding and consulting. Other support is reported to NIH prior to the award activation as part of the "just-in-time" process, as well as in progress reports submitted to NIH. Pending applications for support should be reported as part of the "just-in-time" process, but such support does not need to be identified in progress reports until it is committed by the sponsor. NIH specifically excludes start-up funding, training awards, prizes, and gifts from its definition of Other Support.

Best Practices for International Collaboration

Growing concerns regarding "undue foreign influence" in higher education has led several federal agencies to issue statements emphasizing the need for increased transparency around activities that have the potential to unduly influence our activities, including research practices and outcomes. Furthermore, recent federal enforcement actions underscore the importance of ensuring that the University community works together to protect the credibility of our research, the integrity of our academic and scholarly activities around the world, and the reputations and careers of our faculty, staff, students, and the University.

International relationships may form in virtually any area of university activity, including formal partnerships with international scholars, agreements to explore areas of common interest, student and faculty exchanges, gifts from international donors, and contracts with international vendors.

To best protect the integrity and credibility of our faculty, students, and staff, it is important to disclose individual and institutional relationships to avoid even the appearance that the relationship may have inappropriately influenced actions and decisions. These disclosures are made in various ways, including through the eCOI system for research-related disclosures, the Rutgers Ethics Armor system for New Jersey required disclosures, and through discussions and approval processes implemented by our Chancellors, Deans, and Department Chairs in accordance with University policies. In addition, specific international collaborations may require additional, situation-specific disclosures designed to help our faculty, students, and staff appropriately identify and report international collaborations.

Rutgers has assembled a team with representatives from Rutgers Global, the Office for Research, University Ethics and Compliance, and the Rutgers University Foundation to help answer questions about international collaboration. Contact them by email: Internationalcollaboration@uec.rutgers.edu.

What our community says about the Office of Advanced Research Computing (OARC) and the Amarel system

"Overall, OARC is highly responsive to any issues and very helpful in getting things running efficiently."

"GPU [graphics processing unit] resources are extremely rare. This is one place that we can access GPUs."

*"OARC has knowledgeable and helpful staff and seeks ways to improve their services for scientific computation."*

"OARC made it possible to run the computations that I needed for my research. I had originally been running them on my four-core computer, but this made it possible to do so much more."

"The cluster is well managed and properly updated periodically."

"I am very satisfied with the availability of high-performance computing (HPC) at Rutgers."

"Amarel enables a lot of processing I couldn't do otherwise. Help is responsive."

"I would recommend the OARC cluster (and have already done so) to other faculty because they provide easy access to HPC and because of responsive IT [information technology] help."
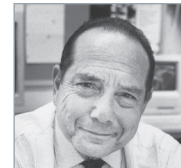
The *Amarel* computing cluster is named after Saul Amarel, a renowned Rutgers professor and pioneer in artificial intelligence. Amarel's work bridged computer science with fields from ecology to medicine. His namesake computing cluster supports Rutgers research in such fields as climate change, galaxy formation, cancer drug treatments, digital journalism, and the neurobiology of autism.

The Office of Advanced Research Computing (OARC) team

RUTGERS
Office of Advanced
Research Computing

Office of Advanced Research Computing (OARC)
Computing Research & Education (CoRE) Building
Rutgers, The State University of New Jersey
96 Frelinghuysen Road, Room 706
Piscataway, NJ 08854

848-445-5227
help@oarc.rutgers.edu
oarc.rutgers.edu

Photography by Nick Romanenko

Office of Advanced Research Computing (OARC)

Research computing and data to revolutionize science and scholarship

RUTGERS

Amarel High-Performance Computing

OARC launched *Amarel*, a new high-performance computing cluster for research computing, in 2017. Named in honor of Dr. Saul Amarel, a Rutgers pioneer in artificial intelligence and research computing, *Amarel* is a shared, community-owned advanced computing environment available to any Rutgers investigator or student with projects requiring research computing resources anywhere at Rutgers. OARC leverages the broad-based expertise of its computational scientists to work with the research community to optimize the application of its technical resources in tackling extremely demanding problems in the STEM disciplines and the life and health sciences.

You Should Know

- The *Amarel* system started as a unified collection of smaller computing clusters in 2017 and has rapidly expanded to become a powerful network of interconnected computing and storage resources distributed across Rutgers
- *Amarel* routinely performs over 600 trillion mathematical operations every second, plus much more if GPU and FPGA hardware are considered
- Over 2,000 students, staff, and faculty have worked and learned using the *Amarel* cluster
- More than 60 Rutgers academic disciplines, institutes, and organizations conduct research using *Amarel*
- Over 400 students, staff, and faculty representing more than 50 academic departments have attended free OARC research computing training workshops
- *Amarel*-partnered research projects have been awarded upward of $54 million since March 2016
- *Amarel* provides a central computational environment for teaching through its didact cluster

---

The Rutgers Office of Advanced Research Computing (OARC) provides strategic leadership in advancing research and scholarly achievements across the university through next-generation computing, data science, networking, and creative learning environments. OARC partners and collaborates with the Office of Research and Economic Development, the Office of Information Technology, and academic and research communities, both internal and external.

Amarel's Technical Specs

- 579 nodes
- 15,340 cores
- 120 NVIDIA GPUs
- Equipment at three Rutgers locations: Piscataway, Newark, and Camden

---

Optimizing Human Performance

The Cognitive and Data Sciences Lab at Rutgers, headed by associate professor Patrick Shafto, aims to showcase the ways in which technologies, such as artificial intelligence, may optimize human performance. Said Shafto, "Collaboration with OARC at Rutgers…ensures that we are taking advantage of all opportunities to advance research goals."

In-Silico Materials Design

Theoretical chemistry associate professor Michele Pavanello seeks "to predict the properties of a material or a liquid (or anything really) before they are synthesized. Imagine a world where we can predict whether a material will be useful or not before we even make it. This goal is realized by encoding the basic laws of physics (quantum mechanics) in computationally amenable algorithms that run on supercomputers, such as *Amarel*."

Eastern Regional Network (ERN)

OARC is leading an initiative dedicated to simplifying multicampus collaborations and partnerships that advance the frontiers of research and innovation. Through a partnership of educational institutions, research facilities, regional network providers, and Internet2, the ERN will provide layered and transparent access to shared data and computing facilities for research projects located at and between partner sites. The resulting regional research and education platform will support a diverse set of science drivers and emergent educational opportunities and offer the educational research community access to a broad range of collaborative multi-institutional resources that are not available on any one campus alone.

Appendix 8:

Rutgers University: Office of Advanced Research Computing (OARC) Facilities, Equipment, and Other Resources

January 2020

OARC is a centrally funded support organization providing technical and scientific support and training to faculty, staff, and students in the use of its extensive computing, networking, storage, and software resources. OARC's computational scientists, known as Research and Education Facilitators (REFs) are experienced independent researchers with deep expertise in biochemistry, bioengineering, business administration, chemistry, data science, genomics, mathematics, mechanical engineering, microbiology, and physics. OARC's infrastructure administration team provides expertise in storage management, security, advanced networking, and automation. Together, these technical teams support and collaborate with investigators on demanding problems requiring advanced cyberinfrastructure to facilitate a path to solution.

Most of OARC's computing systems provide free, open-access to all students, staff, and faculty comprising the Rutgers research community as well as immediate, priority access for investigators who purchase compute nodes. Owners purchase the dedicated resources they need (compute nodes and storage) and OARC, through its university funding, supplies the matching infrastructure (e.g., power, cooling, network access, security, administration) along with both technical and scientific support. Jobs submitted to OARC's computing systems are managed in multiple ways depending on job type (owner or open-access), resources requested, current utilization of federated cluster members, and a variety of other factors. OARC's systems are also capable of enabling bursting of submitted jobs into commercial and academic cloud services when local resources are heavily utilized or other factors favor external resources.

Primary Computing Systems

The majority of OARC's resources are managed under a federated community cluster model named Amarel in memory of the prominent Rutgers artificial intelligence researcher, Dr. Saul Amarel. The Amarel community cluster is the umbrella for distributed resources that number approximately 600 nodes providing 15,500 compute cores, 124 NVIDIA GPUs (Tesla, Volta, and Titan models), Intel Arria FPGAs, and Intel N3000 NICs. Several memory configurations are supported with capacities from 128GB to 1.5TB and including Intel Optane persistent memory modules. All cluster nodes are connected with Mellanox InfiniBand FDR or EDR fabric. Major components of this distributed infrastructure are installed at the New Brunswick, Camden, and Newark campuses. Resources are built out through funding from university, state and federal agencies.

OARC also manages the Caliburn system which was funded by The State of New Jersey and provides computing and storage resources for qualifying proposals from researchers, commercial users, and public offices throughout the state. Caliburn comprises over 700 compute nodes and nearly 24,000 Intel Xeon cores with an Intel Omni-Path network fabric.

Data Storage and Movement

OARC's main storage facilities include four IBM Spectrum Scale appliances distributed across the University with an aggregate of 6 PB usable capacity. General purpose NAS appliances with an aggregate capacity of 1.6 PB provide backup and archive services for OARC's systems on the various campuses. To facilitate distributed data services, Spectrum Scale AFM (Active File Management) is used to provide cached copies of user account data across federation members. AFM utilizes OARC's 100 Gbps research network, CICnet, described in more detail in the next section. AFM utilizes dedicated data transfer nodes (DTNs) architected to optimally utilize the capabilities of CICnet and have been designed to move data across CICnet at speeds approaching 100 Gbps. The FIONA recipe for DTN has been also adopted by OARC to provide an affordable but flexible high-performance path to allow departments, labs, and other communities with demanding data movement requirements a simplified path to aggregate local data and move it into the OARC federated compute environment.

Data Center

Rutgers has seven data centers geographically distributed totaling about 23,000 sq ft and a combined electrical input of 1.1 MW. OARC's anchor facility is located at the Hill Research Computing Data Center which provides 200 KW of power and attendant cooling. Most power is UPS-supported with backup diesel generators.

Location	UPS Power (kilowatts)	Cooling (tons)
Piscataway (NB Campus, Hill Center)	600 (200 non-UPS)	225 (estimated)
Camden	35	3.5
Newark (Engelhard Hall)	52	30

Campus and Regional Networks:

Production

Rutgers University's production data network, RUNet, is a purpose-built network of nearly 100 routers and 2,500 switches servicing constituents of 8 campuses across three metropolitan areas and several dozen remote locations throughout New Jersey. The network interfaces with service providers at two of its main Points of Presence (POPs) in Philadelphia, PA and Newark, NJ. RUNet provides access to 30 Gbps of Internet transit, 10 Gbps of Internet2 IP transit, 10 Gbps of Internet2 Advanced Layer 2 Services, 20 Gbps of private Internet IP Exchange services and several private network interfaces to select content providers. Rutgers is also an anchor member of the NJEDge consortium, a collaboration network of NJ Higher Education.

Research

Funded in part by the NSF (Grant #OAC-1659232) and jointly supported by OARC and the telecom division of the Office Information Technology, CICnet is a 100 Gbps SDN network offering Rutgers investigators advanced compute and file access services while also serving as a testbed for new technologies and high-speed connections to local, regional, and national services in academic and commercial domains.

Regional Resource Collaboration

Rutgers has taken a leadership role in establishing the Eastern Research Network (ERN). Through a developing partnership of educational institutions, research facilities, regional network providers, and Internet2, the ERN is committed to providing layered and transparent access to shared data and computing facilities for research projects located at member sites. As the ERN develops, research communities across the region will have access to a broad range of services and resources that may not available on any one campus alone. Academic institutions, research and educational networks and corporate participants are all working together to demonstrate the value of the ERN. Syracuse, UMaine, NJIT, OSHEAN, NJEdge.Net, Kinber, Google, Lenovo and SchedMD are among the expanding list of ERN member organizations.

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REQUEST A WORKSHOP FOR YOUR DEPARTMENT OR GROUP:

*Please contact Nicholas M. Ponzio at ponzio@njms.rutgers.edu

GENERAL QUESTIONS ABOUT THE INITIATIVE:

*Please contact Mary Nucci at mnucci@sebs.rutgers.edu
or visit scicomm.rutgers.edu

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