New Faculty Orientation Research for STEM

August 17, 2022

Michael Holland
VC for Science Policy & Research Strategy
mike.holland@pitt.edu
Learning Goals

• Recognize each stage of the sponsored project life cycle

• Identify the services PittResearch and other Pitt units offer that support your success as a faculty member.
Agenda

• The Academic R&D Sector
• Pitt Research
• Other Pitt units
• Q&A
• Self Guided Slides
Higher Education R&D spending

$86.4B FY2020
Institutional Funds, 25%

NSF NCSES, HERD Survey, FY2020, Table 1; Total US R&D $707B, CY2020
US R&D spending

$708B FY2020

NSF NCSES, National Patterns of R&D Resources: 2019-20 Data Update, Table 2
Higher Education R&D spending

$86.4 billion
FY2020

Externally Driven

$1.1 billion
Pitt

NSF NCSES, HERD Survey, FY2020, Table 3 (Total), Table 21, (Pitt)
Stages of the Research Lifecycle

Identify Prospective Funding Sources
The first step in developing a funded project is identifying prospective funding sources.

Plan for Compliance and Regulatory Issues
Become familiar with the relevant rules and regulations while developing a project and funding proposal.

Develop Resources
The training, experience, and expertise of investigators and team members are the central resource in creating a successful research proposal.

Propose Project to Prospective Funders
The key to every successful proposal is to address the opportunity as presented by the funding agency.

Perform Research
Complete preparations and carry out the proposed research.

Close out Project and Promote Work
Share, publish and promote the knowledge created through your research.

Innovate & Partner
Information and steps to submit an invention disclosure.
Research Roles & Responsibilities

- **Faculty member**
- **Division**: strategy, collaboration (subfield? Clinical v lab tensions?)
- **Department**: course releases, equipment, space, mentoring
- **School**: tuition remission for trainees, bridge funding, cost share, space, equipment, salary supplements on grants – often in collaboration with the department and ADR.
- **ADR**: request for resources from the school generally go through the ADR. Advocacy, research support, school-wide perspective, integration of departmental-level initiatives and priorities.
- **Centers & Institutes**: Clarity coming….
- **University**: regulatory compliance, EH&S, receives awards on behalf of PI, pre- (PittResearch) & post-award (CFO) grant management.
Pitt Research Overview

- Who we are, what we do
- Our strategic priorities
PittResearch: Sponsored Programs

• **Curates & share opportunities** for awards and honors across campus

• **Manages** pre-award: contracts and grants, federal, industry, and gov’t; fee-for-service

• **Reviews** proposals for compliance, submits on behalf of Pitt
  - Sponsor guidelines & University policies
  - Budget details (correct rates, caps, etc.)
  - Approvals from external collaborators
  - Restricted Party Screening

• **Negotiates** contract terms & conditions, IP, etc. for all new awards

Jennifer Woodward
Vice Chancellor
OSP Research Development Office

Curates funding opportunities (from 30K+ sources, weekly)

Manages limited submissions

Offers award workshops, coaching, office hours

Manage Prestigious Awards databases and training
PittResearch: Research Protections

- Assures Pitt research conduct is **ethical & legal**
- Reviews research proposals (protocols) to assure **compliance** with all relevant federal and state laws
- Assures investigators are **trained** for research conduct
- **Inspects/audits** labs & studies for standards compliance

Bill Yates
Vice Chancellor
Regulatory Oversight via Faculty Cmtes

Institutional Review Board (IRB)

Institutional Animal Care and Use Cmte (IACUC)

Institutional Biosafety Cmte (IBC)

Conflict of Interest Cmte (COIC)

Areas of Oversight:
- Human Subject Research
- Animal Research
- Recombinant DNA Research
- COI Management

In addition: Trade Compliance, Radiation Safety, Research Integrity, Clinical/FDA
ORP Concierge Services
Office of Research Computing

- Provides **advanced computing platforms** to Pitt researchers
- **Expert advising** on technical, science applications
- **Computing & storage** solutions
- **Broad**: Hardware, software, services; on-premise platforms, cloud platforms

John Cooper
Interim Vice Chancellor
Research Computing Ecosystem

Three complementary organizations working together

Center for Research Computing
Campus Computing
Supports $124M

Adam Hobaugh
Co-Director of CRC
Deputy CIO

Kim Wong
Co-Director of CRC

Pittsburgh Supercomputing Center
National Center
Supports $1.5B

Mark Henderson
Chief Information Officer

Pitt IT
Enterprise Services

Mike Becich
Interim Director of PSC
Lots of Computing Resources

- On-premise & remote cloud
- Computing & storage
- Especially for AI apps
- You just need to ask…

Ex: Cerabras AI machine.
- Most schools have 0; we have 2

<table>
<thead>
<tr>
<th>Resource</th>
<th>CRC</th>
<th>PSC</th>
</tr>
</thead>
<tbody>
<tr>
<td>General CPU Cores</td>
<td>10K+</td>
<td>72K+</td>
</tr>
<tr>
<td>GPU &amp; AI Cores</td>
<td>640K+</td>
<td>1.7M+</td>
</tr>
<tr>
<td>Data Storage</td>
<td>3PB</td>
<td>15PB</td>
</tr>
<tr>
<td>Research Supported</td>
<td>$124M</td>
<td>$1.4B</td>
</tr>
</tbody>
</table>
Office of Innov & Entrepreneurship

• Manages intellectual property (IP): patents, copyrights, trademarks, licensing
• Supports innovation pipeline: students, faculty, startups, incubation
• Manages new Chancellor’s Gap Fund for startups
• Manages industry partnering and economic development
• Supports small business services
3. Startups & Industry Partnering

• Pitt ranks top #15 in US R&D funding*
  • Pitt receives around 1.5% of total federal R&D at universities
  • Strong overall performance

• Pitt does not hit top 50 rank in industry funding
  • Ranked #57 in 2019 NSF HERD survey
  • Not a strong overall performance

* Data source: 2019 US NSF Higher Ed Research and Development (HERD) Survey
Office of Industry & Econ Partnerships

The Office of Industry and Economic Partnerships (OIEP) aligns Pitt’s vast research capabilities and world-class expertise with the needs of industry, creating mutually beneficial partnerships that advance important science, solve industry-relevant R&D challenges, and provide channels for the commercialization of new technologies of high value and societal impact. We also partner with economic development organizations to grow opportunities for employment and regional investment.

Joe Havrilla, Assoc. VC
37 years in health industry
30+ patents → $1.5B revenue
Previous job:
SVP & Global Head of BizDev.
& Licensing for Bayer Pharma
PittResearch Overview

• Who we are, what we do

• Our strategic priorities
PittResearch: Focus Priorities

1. Team science
2. Policy ecosystem
3. Startups & industry partnering
4. Foreign influence
5. Outreach to Research at Key Intersections
6. Prestigious faculty awards
1. Fed R&D Funding Pivoting to Teams

Collaborations matter especially for large $$

**Abstract**

We have used 19.9 million papers over 5 decades and 2.1 million patents to demonstrate that teams increasingly dominate solo authors in the production of knowledge. Research is increasingly done in teams across nearly all fields. Teams typically produce more frequently cited research than individuals do, and this advantage has been increasing over time. Teams now also produce the exceptionally high-impact research, even where that distinction was once the domain of solo authors. These results are detailed for sciences and engineering, social sciences, arts, and humanities, and patents, suggesting that the process of knowledge creation has fundamentally changed.

DOI: 10.1126/science.1136099

**Team Size vs #Proposals @ PITT**

- 1 to 4: 4,967
- 5 to 9: 1,136
- 10+: 82

**Data Source:** Office of Sponsored Programs, FY18-20
1. Tracking Pitt Award/Collab Network

Dot = PI
Edge = Proposal

Data Source: Office of Sponsored Programs, FY18-20
Pitt Momentum Funds

PMF Seeding Awards
Focus on individual excellence and fields lacking external support
- Up to $25K
- Four tracks, including Social Sciences, which includes Business, Policy, Law, Education & Social Work

PMF Teaming & Scaling Awards
Focus on mid- & large-scale on team research with external potential
- $60K / 1yr
- $400K / 2 yr

For-profit or Non-profit Spin Out

Campus Commercialization Funds

Chancellor’s Gap Funds

External VC

For SOM: UPMC Competitive Medical Research Fund
Big Proposal Bootcamp Agenda

• Case studies
  • Rob Rutenbar, SRC/DARPA C2S2: Proposal parts & pieces
  • Alan George, SHREC: Corporate ecosystem
  • Bill Wagner, NSF ERC: Lessons learned
  • Alison Langmead, DHRX: Research collaboration
  • Cori Zawacki, RIBBiTR: Working with coaches, RSVs
  • Anuradha Ray, Sally Wenzel: NIH P01 Program Project Grants
  • Julia Lane, Coleridge: Working with foundations
Opportunities at Research Intersections

• Leadership to focus on opportunities at intersections of Pitt’s strengths, disciplines, organizational units

Prof. Shelome Gooden
Asst Vice Chancellor for Research in Arts, Humanities, Social Sciences and Related Professional Fields

Prof. Rory Cooper
Asst Vice Chancellor for Research for STEM – Health Sciences Collaborations
Research, Ethics & Society Initiative & Research Ethics Consultation Service

• Modeled on hospital Clinical Ethics Consultation Services
  • Consult with researchers on research design & conduct

• Process — benchmarking

• Stanford (founded 2004)
  • Benchside Ethics Consultation
  • Began with genetics

• Consultative, not regulatory

• Complements
  • HRPO/IRB, IACUC, HSCRO ...
  • CTSI, CITI ....
6. Prestigious Faculty Awards

- **Fact**: Pitt faculty under-awarded for prestigious honors
- **Data**: Pitt ranks near bottom of AAU schools for #awards

**Key gaps**

- Award awareness and strategy
- Award tactics and execution
Pitt Research Awards: Success Story

• We offered intensive coaching to junior faculty applying for 2021 National Science Foundation CAREER awards

10 in PittResearch coaching

6 wins (67%)

13 outside our coaching/mentoring

3 wins (23%)
ULS Scholarly Communication & Publishing Services

- **Open Access**: Understand Open Access (OA) publishing options and find OA journals

- **Article Processing Charges**: Obtain up to $3000 of funding yearly for applicable articles

- **Share Research**: Use our D-Scholarship@Pitt institutional repository to share articles, conference materials, datasets, and more

- **Copyright**: Navigate publishing contracts, author rights, and licensing

- **Scholarly Profile**: Learn how to use Elements, ORCID, and other profiles to share your research

- **Publishing**: Discover our Pitt Open Library Publishing journal catalog

- **Go Open**: Make your journal Open Access with our publishing program and hosting services

- **Theses and Dissertations**: Get assistance with Electronic Theses and Dissertations (ETD) requirements, formatting, copyright, and support.

oscp@mail.pitt.edu
Data Services

• **Write** a data management or sharing plan

• **Comply** with data sharing policies

• **Organize & describe** your research data or files

• **Identify** appropriate data repositories

• **Create** effective data visualizations

• **Locate** existing datasets for reuse

• **Preserve** your data/files for long-term access

Icons made by [Pixel perfect](https://www.flaticon.com) from [www.flaticon.com](http://www.flaticon.com)
Statistical Consulting

- **Center for Statistics**: services include design, data summarization, analysis, and interpretation of results. Researchers from various disciplines.

- **CTSI Biostatistics, Epidemiology, and Research Design (BERD) Core**: statistical and study design consultations and research-focused training through workshops and individual meetings.
OUR MISSION

- Internationalizing the student experience on campus and abroad
- Supporting international/global interdisciplinary research and partnerships
Global Priorities

1. PIT to the WORLD
   the WORLD to PIT
   Connect our domestic and international pursuits to generate synergies that help strengthen our communities.

2. GLOBAL READY
   Cultivate globally capable and engaged students toward lives of impact in their communities and beyond.

3. GLOBAL IMPACT
   Convene a global community of researchers that advances our frontiers of knowledge and tackles real-world problems.

4. GLOBAL OPERATIONS SUPPORT
   Rewire and improve our infrastructure to streamline, facilitate, and expand engagement with the world.
Dietrich’s Writing Institute

- **Dana Nowlin-Russell** coaches faculty on writing grant proposals:
  - organizing proposal information,
  - generating and clarifying ideas,
  - working through writer’s block, and
  - developing language appropriate for funders
- **Faculty Writing Program**: Writing Days & Writing Groups
- [https://www.writinginstitute.pitt.edu/](https://www.writinginstitute.pitt.edu/)
Self Guided Slides

- Brief tutorial on indirect costs
- OSP: Research development team, finding funding, workshops
- ORP: Concierge services, research security, export control, COI
- Research data management and other library services
- Thumbnail overview of grantsmanship
Indirect Costs (Federal)

Direct Costs + Indirect Costs = Total Award Amount

Faculty salaries, GSR salaries, fringe, tuition remission, equipment, consumables, travel & events, renovation, commercial supplies & services

Electricity, water, HVAC, IT, phones, building renovation & maintenance, libraries, CRC, debt service, OSP, Research Protections, university & departmental admin
Indirect Costs Limitations: Federal

Direct Costs + Indirect Costs = Total Award Amount

Direct Costs + 56.5% Direct Costs* = Total Award

Direct Costs + 56.5% MTDC = Total Award

EXCLUSIONS OR EXCEPTIONS TO MTDC CALCULATION
• Subawards in excess of $25,000
• Equipment (including lease purchased equipment) > $5,000
• All building and land rentals and leases
• Alterations and renovations to permanent structures
• Tuition for graduate teaching and research students on appointment
• Student or postdoc fellowship and traineeship stipends
• Participant support costs

https://www.osp.pitt.edu/about/data-proposal-preparation-general
Indirect Costs Limitations: Federal

Direct Costs + Indirect Costs = Total Award Amount

Direct Costs + **56.5%** Direct Costs* = Total Award

Direct Costs + **56.5%** MTDC = Total Award

**56.5%** = Indirect Cost Rate Federal, on-campus, FY22

Indirect Cost Share < 36.1% Total Award

Indirect Costs = Indirect Cost Recovery = IDC

= Overhead = “F&A”
Info on Indirect Costs

• Kelvin Droegemeier’s Labor/HHS Appropriations Subcommittee testimony:
  https://www.cogr.edu/sites/default/files/Droegemeier%20Full%20Written%20Testimony%20FINAL.pdf

• “Understanding the Real Costs of Research” by AAMC, APLU, AAU, COGR, ACE, NACUBO :
  https://youtu.be/GzNcZh49f-s
OSP Research Development Office

Manage Prestigious Awards proposal support (+P&AE)
• Responsible for
  • strategically advancing the University’s research goals,
  • communicating research opportunities,
  • enhancing research collaboration and team science.

Ryan Champagne
Assistant Director for Research Development
rkc12@pitt.edu
Group Consultation bookings

Bradley Pollock
Research Development Funding Specialist
bcp27@pitt.edu
Individual Consultation bookings
OSP’s Finding Funding

Funding Database

Competition Space

Internal & Limited Submission Funding

Workshops & webinars

Weekly funding updates

RD Events Calendar

@PittGrantsDev

45
OSP’s Pivot Funding Opportunity Database

- 30K+ funding opportunities
- All disciplines, career stages
- Weekly search results
- Prioritized alerts
- Account required
- Subscription service
- Workshops
- [https://www.osp.pitt.edu/external-funding-resources](https://www.osp.pitt.edu/external-funding-resources)
OSP’s Weekly Funding Updates by Discipline

Computing & Information Education Engineering Health & Life Sciences Humanities Natural & Physical Sciences Social Sciences

We send these to research faculty in relevant Schools
OSP’s Newsletters & Tweets

@PittGrantsDev

- Seven weekly newsletters
  - grantdev@pitt.edu for newsletter(s)
- High-level disciplinary focus
- Curated for eligibility
- Special program releases
- Limited submission announcements
- Event registrations
RD Calendar: Pitt Workshops & Funder Events

- Interactive events with funders
- Recorded webinars
- Weekly Pivot sessions each term
- Individual and group consultations
- Workshop series for grant writing
  - Varies each term
  - Federal sponsor-focused

https://www.osp.pitt.edu/finding-funding-workshops
Competition Space: Internal Applications

- Limited Submission opportunities
  - Funder restricts number of applications
  - Early stage “lite” version of project
  - Pitt Research endorses institutional applicant
  - [https://www.osp.pitt.edu/limited-submissions-process](https://www.osp.pitt.edu/limited-submissions-process)

- Internal Funding Mechanisms
  - Pitt Research – Momentum Funds (fall)
  - Chancellor – Pitt Seed Projects (spring)
  - New programs annually
  - [https://www.osp.pitt.edu/internal-funding-opportunities](https://www.osp.pitt.edu/internal-funding-opportunities)

- Log in via MyPitt.edu to apply
The Office of Sponsored Programs hosts weekly workshops to provide an overview of resources available through Pitt Research that may be used for finding funding and collaboration opportunities to support and reward research and scholarly endeavors.

Registration: https://www.osp.pitt.edu/funding/find-funding-workshops
For faculty considering diversifying their funding portfolio beyond NIH-awarded projects the NSF may be a viable sponsor.

- two-part information sessions with follow-on office hours;
- accepting and returning feedback on concept papers through August 2022

- Session 1: Introducing Differences Between Agencies (Recording linked)
- Session 2: Writing a Competitive NSF Research Proposal (Recording linked)
OSP’s NSF CAREER

For junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations

- 2022 three-part panel discussions involving institutional awardees, peers, and research support services partners
- 2021 four-part information sessions accepting and returning feedback on concept papers through August 2022

- [OSP page with links and all session links in notes]
OSP’s The NIH R25

For faculty interested in research education activities that: (a) complementing workforce training to meet the nation’s biomedical, behavioral and clinical research needs; (b) enhancing the diversity of the biomedical, behavioral and clinical research workforce; (c) recruiting individuals to research careers in biomedical, behavioral and clinical sciences; or (d) fostering a better understanding of biomedical, behavioral and clinical research and its implications.

- one-part information session with follow-on office hours
- accepting and returning feedback on concept papers through August 2022

- NIH R25 Session recording link
OSP’s Introducing the Department of Defense

For faculty with limited experience in strategizing outreach and proposing projects to the Department of Defense, and with some emphasis on early career funding mechanisms.

- 2021 three-part information sessions accepting and returning feedback on concept papers through January 2022
- OSP page with links and all session links in notes
OSP’s Introducing & Demystifying the NIH

For faculty with limited experience of proposing projects to the National Institutes of Health and with some emphasis on early career funding mechanisms.

- 2021 four-part information sessions accepting and returning feedback on concept papers through August 2022

- OSP page with links and all session links in notes
OSP’s Introducing SBIR/STTR Programs

For faculty interested in the innovation landscape, developing private sector partnerships, or creating a small business.

• **one-day information session with consultations and follow-on review support; accepted and returned feedback on concept papers through September 2021**

• **OSP page with links and all session links in notes**
OSP Office Contact

Find the appropriate contact for your school, office, or department. Members of our processing teams are here to help you.

Note: Due to recent security updates this search function is restricted to computers that are connected to PittNet via the on campus network or the VPN. For more information on connecting to the VPN, please see https://www.technology.pitt.edu/services/pittnet-vpn-pulse-secure.

Select Department

Click to choose

12212 - Linguistics
12213 - History & Phil of Science
12215 - Studio Arts
12219 - Religious Studies
12227 - Medieval & Renaissance Studies
12230 - University Theatre
13203 - Chemistry
13204 - Geology & Environmental Science
13205 - Mathematics
13206 - Physics & Astronomy
13207 - Psychology
13208 - Computer Science
13209 - Pymatuning Laboratory
13210 - Statistics
13211 - Crystallography
13213 - Intelligent Systems
13225 - Neuroscience
13226 - Biological Sciences
13228 - Neuroscience Research Support

https://www.osp.pitt.edu/find-your-office-contact
Funding Supplements

- NSF Graduate Research Diversity Supplements
- NSF Research Experience for Undergraduates
- NSF Research Experience for Teachers
- NSF Research Assistantships for High School Students
- NSF Research Opportunity Awards
- NIH Diversity Supplements
- DOE Phase II Diversity Supplements
OSP’s Research Development Calendar

• The Research Development team maintains a calendar of funding- and proposal development-related events hosted by federal agencies as well as philanthropic and corporate sponsors.

• A comprehensive list of upcoming events may be accessed in the Research Development calendar here.
ORP Concierge Services
**ORP Concierge Services**

• ORP is eager to help new investigators get started:
  • Please direct new investigators to our concierge services
  • Staff from relevant offices will meet with the investigator to provide guidance on protocol writing, research requirements, etc.
Connect with ORP

• Jumpstart your research
• Custom onboarding for new investigators to discuss regulatory requirements (sign up here)
• Workshops (see flyer)

• General questions and training.
  Fill out Form

• IRB specific questions
  askirb@pitt.edu
Foreign Influence: Finding New Normal

Sept 2020:

https://www.chronicle.com/article/u-s-turns-up-heat-on-colleges-foreign-ties-that-may-chill-partnerships-for-years

April 2021:

https://www.politico.com/news/2021/05/27/universities-foreign-funding-china-491239
Other Areas Intersecting with Export Controls

- International Travel
  - What are you taking?
  - Where are you going?
  - With whom are you collaborating?
  - Use Concur [https://pext.pitt.edu/concur/](https://pext.pitt.edu/concur/)

- International Shipments
  - Use University ProShip system for automatic export screenings
  - [https://www.pts.pitt.edu/mailing-services/mail/express-mail](https://www.pts.pitt.edu/mailing-services/mail/express-mail)

- Academic Visitors
  - See [www.visitor.pitt.edu](http://www.visitor.pitt.edu)

- Procurement
  - Items values over $10,000
  - [https://cfo.pitt.edu/pexpress/purchases/exports_intnlsxns.php](https://cfo.pitt.edu/pexpress/purchases/exports_intnlsxns.php)
Manage Conflict of Interest Disclosure

• Prior to 2020: **Paper** COI form; wet signature; not searchable
• New in 2020: **Unified web disclosure** solution Pitt+UPMC
• COI Mgt Today: **Completed** 2nd disclosure season (99+% compliant!)

Disclosers by Category (data from June 2021)

- Predoctoral Trainees (8%)
- Postdoctoral Trainees (7%)
- Executives (1%)
- Faculty (49%)
- Staff (35%)
Pitt Policy Ecosystem Updates

- Conflict of Interest (COI) - Complete
- Intellectual Property (IP) - Complete
- Outside Activities (Consulting) - 1st Draft
- Licensing Human Subject Samples/Data - Starting
# Pitt’s University Library System offers Services for Your Research Data

<table>
<thead>
<tr>
<th>Working with data &amp; code</th>
<th>Managing your data &amp; code</th>
<th>Sharing for Open Science</th>
<th>Finding and reusing data &amp; code</th>
</tr>
</thead>
<tbody>
<tr>
<td>programmatic tools like Python and R</td>
<td>data management plans for grant proposals</td>
<td>finding the right repository for your data</td>
<td>finding needed packages or open datasets</td>
</tr>
<tr>
<td>data visualization for exploratory analysis or publication</td>
<td>version control using Git and GitHub</td>
<td>using D-Scholarship, Pitt’s institutional repository</td>
<td>making sense of others’ code and documentation</td>
</tr>
<tr>
<td>geospatial data (GIS) and mapping</td>
<td>documentation for long-term reusability</td>
<td>preparing your project for sharing</td>
<td>understanding data and code licensing</td>
</tr>
<tr>
<td>computational text analysis</td>
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</table>

Book a consultation or inquire about workshops at https://library.pitt.edu/ask-us
ULS Research Services

Resources include planning, design and implementation, discovery, data management, impact, publishing support and archiving:

• Identify potential collaborators
• Learn about copyrights
• Request digitized material
• Start the electronic theses and dissertation process
• Access geographic information systems
• Access metadata support
• Follow open access publishing
• Schedule a research consultation
• Access text mining and analysis
• Conduct literature search and review with the help of library specialist
• Manage your information sources
• Establish research reporting guidelines
Health Sciences Library System

The Health Sciences Library System (HSLS) offers assistance throughout the research process from developing/refining a search strategy, reviewing the literature, developing search methodology, managing data, and communicating research:

• Review the existing literature
• Find existing systematic reviews and develop systematic review protocol
• Manage citations
• Access discovery tools, databases and full text published literature
• Create with SciENcv (for applying for NIH funding)
Grantsmanship

• Do your homework
• Talk to Program Managers before you apply
• Open calls
• Solicitations:
  • Read the Funding Opportunity Announcement (FOA, RFP, BAA, …)
  • COMPLIANCE, COMPLIANCE, COMPLIANCE
• NOTE: Agencies are using ML tools to catch plagiarism, self-plagiarism, failures to disclose.
Talk to Program Managers

- How do I contact? email
- How do I get prepared (read FOA, do your homework)
- What do I send ahead (Quad chart, concept paper, specific aims)
- What do I ask about?
  - Portfolio priorities & Program fit (this program? a different one?)
  - What should I not ask about?
Scrutinizing a solicitation

STEP 1: FIND OPPORTUNITIES

What is the goal of the program?
Will the budget be enough?
Am I eligible to apply?
Will my proposal be competitive?
Does this grant fit my timeline?
What is the PO’s contact info?
What should my proposal include?
What are the program updates/revisions?
Are there any RED FLAGS?
Does this MEET MY NEEDS?

What NSF Directorates participate?
McAllister & Quinn
NSF 19-503

REPLACES DOCUMENT(S):
NSF 15-589

National Science Foundation
Directorate for Engineering
Engineering Education and Centers

Letter of Intent Due Date(s) *(required)* (due by 5 p.m. submitter’s local time):

November 30, 2018

Preliminary Proposal Due Date(s) *(required)* (due by 5 p.m. submitter’s local time):

January 16, 2019

Full Proposal Deadline(s) (due by 5 p.m. submitter’s local time):

July 12, 2019

IMPORTANT INFORMATION AND REVISION NOTES

IMPORTANT INFORMATION

**Cost Sharing:** Cost sharing is required. However, inclusion of “voluntary committed cost sharing” is specifically prohibited in NSF’s cost sharing policy, as stated in the *NSF Proposal and Award Policies and Procedures Guide*. ERC proposals that include cost sharing amounts more than the specified formula described in this solicitation will be returned *without review*. The formula for required cost sharing is described in the full text of this solicitation.
Anticipated Funding Amount: $14,000,000

$14,000,000 to support the first year for up to four newly funded ERCs, depending on availability of funds in FY 2020. ERCs generally operate for ten years, with an initial award for the first five years and second award based on performance and review of a renewal proposal.

NSF expects to make the ERC awards in the summer of 2020. The initial ERC award would be for five years. The maximum annual budget allowed is shown in the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Allowable Maximum Budget</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>$3,500,000</td>
</tr>
<tr>
<td>2</td>
<td>$4,500,000</td>
</tr>
<tr>
<td>3</td>
<td>$6,000,000</td>
</tr>
<tr>
<td>4</td>
<td>$6,000,000</td>
</tr>
<tr>
<td>5</td>
<td>$6,000,000</td>
</tr>
</tbody>
</table>

Year 1 budget will be committed upon award, and subsequent year budgets are subject to satisfactory annual review of accomplishments and availability of funds. After a gradual ramp up, years three through five are projected to level off at $6,000,000 in each of those years. Pending performance and outcome of a renewal review in the fourth year, support for years six to eight will continue at $6,000,000 per year. Support for years nine and ten will be phased down, with $4,000,000 in year 9 and $2,600,000 in year 10.

Most agencies specify Total Award. NIH usu. specifies Max Direct Costs.
Cost Sharing Formula:

ERC cost sharing requirements are graduated based on classification at the time of the LOI submission deadline as defined in the "Carnegie Foundation’s Classification of Institutions of Higher Education." Limited financial resources at smaller colleges and universities that lack high research activity may present significant challenges to cost sharing. Therefore:

- RU/VH: Research Universities - required cost sharing level is 20% of the allocation of the NSF budget to the lead or core partner university;
- RU/H: Research Universities - required cost sharing level is 15% of the allocation of the NSF budget to the lead or core partner university;
- DRU: Doctoral/Research Universities - cost sharing level is 10% of the allocation of the NSF budget to that core partner university;
- Master's L: Master's Colleges and Universities - cost sharing level is 10% of the allocation of the NSF budget to that core partner university/college;
- Bac/Diverse: Baccalaureate Colleges--Diverse Fields - cost sharing level is 5% of the allocation of the NSF budget to that core partner college.

If the university is classified in more than one Carnegie category, it must cost share at the highest cost sharing category as described above. The Carnegie classification shall remain throughout the duration of the competition and any subsequent award. The total ERC cost share shall be 20% or less, depending upon the Carnegie classifications for each of the partners.
Other Budgetary Limitations:

The overall ERC-level budget should be prepared to assure sufficient funding from all sources to achieve the goals of the ERC. Hence, this budget would include faculty and staff to support the research, education, diversity and culture of inclusion, industrial collaboration/innovation, and management of the ERC. Budgets should include resources for reporting, site visit costs, and travel for cross-ERC collaboration and NSF meetings. The budget submitted to NSF will include an allocation plan for the NSF funding only.
Review Criteria

Preliminary Proposal Review Criteria:

Reviewers should consider these high-level questions: How well does the preliminary proposal narrative address the following in the project description?

1. What is the compelling new idea and what is the potential high societal impact?
2. Why is an ERC necessary to tackle the idea?
3. How will the ERC’s infrastructure integrate and implement convergent research, engineering workforce development, diversity and culture of inclusion, and an innovation ecosystem to achieve its vision and create societal impact, impact on the scientific enterprise, and impact on the engineering community?
4. What is the proposed management structure for the ERC and how will it foster team-formation and convergent research, as well as an integrated approach for items 1-3 above?
5. What are the proposed strategies for engaging and developing the appropriate stakeholder community?
6. How will all ERC participants engage in a unique experience that would otherwise not be available?
Financial Review Criteria

- Financial Support and Resources
  - How well does the Center describe strong institutional commitment for all core partner institutions?
  - Does the Center have adequate capital (i.e., facilities, equipment, cyberinfrastructure) and procedural (i.e., safety, environmental) resources? Why or why not?
  - Does the Center have a convincing plan for data sharing and management? Why or why not?
C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF’s electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF Proposal & Award Policies & Procedures Guide (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pappp. NSF requires ERCs to submit annual reports that are more extensive in scope than those required of single investigator awards. NSF provides guidelines for these reports. NSF also requires ERCs to collect and submit to NSF data on indicators of progress, outcome, impact, and financial management. NSF provides data definition guidelines and templates for the recording and submission of these data through a secure web site.
Develop a Compliance Checklist

Synopsis of Program:

CAREER: The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation’s most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization. Activities pursued by early-career faculty should build a firm foundation for a lifetime of leadership in integrating education and research. NSF encourages submission of CAREER proposals from early-career faculty at all CAREER-eligible organizations and especially encourages women, members of underrepresented minority groups, and persons with disabilities to apply.

PECASE: Each year NSF selects nominees for the Presidential Early Career Awards for Scientists and Engineers (PECASE) from among the most meritorious recent CAREER awardees. Selection for this award is based on three important criteria: The criteria are 1) performance of innovative research at the frontiers of science, engineering, and technology that is relevant to the mission of the sponsoring organization or agency, 2) community service demonstrated through scientific leadership, education or community outreach, and 3) commitment to STEM equity, diversity, accessibility, and/or inclusion. These awards foster innovative developments in science and technology, increase awareness of careers in science and engineering, give recognition to the scientific missions of the participating agencies, enhance connections between fundamental research and national goals, and highlight the importance of science and technology for the Nation’s future. Individuals cannot apply for PECASE. These awards are initiated by the participating federal agencies. At NSF, up to twenty-six nominees for this award are selected each year from among the PECASE-eligible CAREER awardees most likely to become the leaders of academic research and education in the twenty-first century. The White House Office of Science and Technology Policy makes the final selection and announcement of the awardees.

Convert solicitation’s text into Excel spreadsheet
Focus on “should,” “must,” “will”
Start Early

Writing Big Proposals is its own Project!

- Define a proposal development schedule.
- Program in “color team” reviews of multiple drafts (pink, red, gold).
- Allow for INTERNAL and EXTERNAL DEADLINES.
- More institutions involved, the longer tasks take.
- COI/COA checks w/ collaborators. Things you need from others (know your compliance issues)
- Subawards (other university timelines)