Office of Research
Research Development and Support Series

Making the Transition: Multi-PIs and Center Grants

Monday, March 3, 2020

University Hall, Room 454

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Overview

Introductions

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Our Experts

- **Teri Reed, Ph.D.,** Assistant Vice President, Professor of Chemical Engineering

- **Sarah Clift,** Assistant Director for Research Development

- **Patrick Clark, Ph.D.,** Associate Vice President of Operations and Management

- **P.K. Imbrie, Ph.D.,** Professor of Engineering Education and Aerospace Engineering, Department Head of Engineering Education

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Just Released

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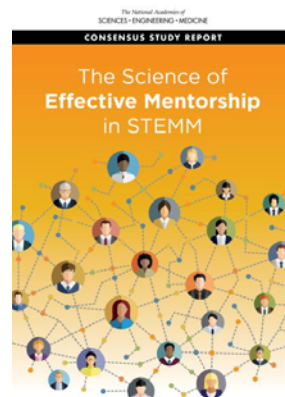
Agenda

- What and Why Large Grants?

- Small team vs large center proposal development

- Tips prior to solicitation

- Four action items for today

- Panel discussion

Based on presentations by PK Imbrie, UC; Sally Bond, Purdue University; Lucy Deckard, Academic Research Funding Strategies, LLC; and a Lewis-Burke report to the Office of Research

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Characteristics of large team grants and why agencies fund them

- Complexity and significance of the scientific problem
- Range of expertise required to solve the problem
- **Value of a center structure**

Why should we fund your team instead of funding each of you individually?

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How large are team grants?

- **>$10 million? >$5 million? > $3 million?**
  - NSF Science and Technology Centers
  - NSF Engineering Research Centers
  - DOE Energy Hubs
  - NIH P01 (Research Program Project) Grants
- **Mission creep of expectations for team grants**
  - Many smaller grants now look like large team grants
  - Interdisciplinary, transformative rather than incremental change, new models, innovation, etc.
- Makes the narrative more challenging to plan, develop and write → requires a **more informed team**

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Agencies with Large Federal Funding Opportunities

- National Science Foundation
- Department of Energy
- Department of Defense
- National Institutes of Health
- National Aeronautics and Space Administration
- Department of Homeland Security
- Department of Transportation
- National Oceanic and Atmospheric Administration
- Department of Education
- National Endowment for the Humanities

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Specific Large Team Opportunities

- NSF Engineering Research Center (ERC)
- DOE Innovation Hubs
- NIH Program Project Grants (P)
- NSF Science and Technology Center (STC)
- DOE Energy Frontier Research Centers (EFRC)
- NSF Materials Research Science and Engineering Center (MRSEC)
- DHS S&T Centers of Excellence
- NSF Physics Frontiers Center

More Example Large Team Opportunities

- DoD Multidisciplinary University Research Initiative (MURI)
- Educational/Institutional Programs
  - NSF ADVANCE
  - NSF Alliances for Graduate Education and the Professoriate (AGEP)
  - NSF Research Training Groups in Mathematical Science

From the Agency's Perspective

- These are big bets!

- Need a big potential payoff
- Need to feel comfortable that the PI and the team can deliver

Beyond Disciplinary Boundaries

I'm on the verge of a major breakthrough...

but I'm also at that point where Chemistry leaves off and Physics begins....

So I'll be have to drop the whole thing....

Writing team grants is challenging

- Co-PIs/team dynamics
- Partner institutions
- Vision and goals
- Narrative sections
- Management plan
- Other non-technical sections
- Consensus budget

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Why Pursue Large Team Grants?

- Enable long-term effort and large collaborations
- At the forefront of research
- Provides new infrastructure and capacity at your institution
- Prestigious, high visibility
- Leads to more funding

Figure 1. Research centers can be very complex organizations
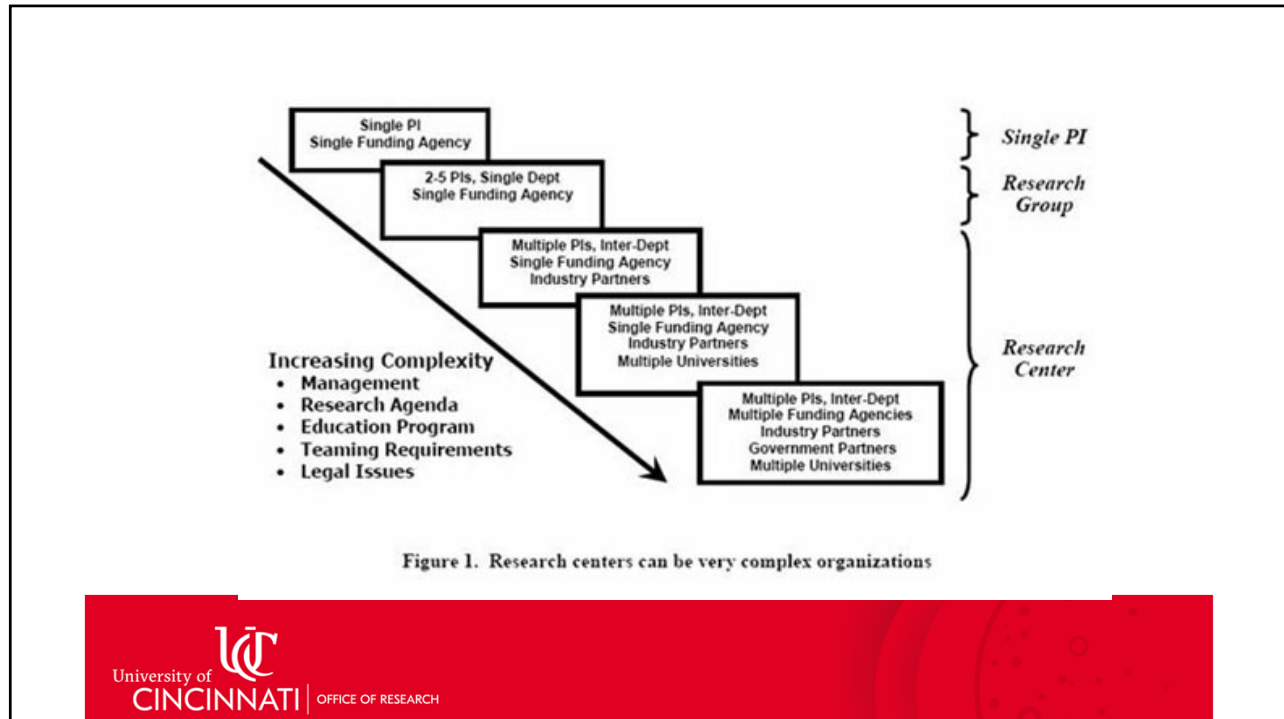
Basic Grantsmanship is the Same

Strategies for a strong proposal
- tell a compelling story
- respond to solicitation
- answer "Why this team?"
- know your audience
- conduct internal review

...But More to Consider

- Fuller spectrum of components. Complexity of scale and scope. Leadership.

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Not just a more complicated budget

- Cost share
- Assessment
- IP Policy
- Foreign collaborators
- Critical path
- Stakeholder meetings
- Strategic Partners
- Timeline
- Commercialization
- Diversity Liaison
- Headquarter space

- Research thrusts
- Team travel
- Cross-institutional educational programming
- Mentoring
- K-12
- Site Visits
- Contracting
- Marketing
- Complex Management
- Ten-year milestones
- Fee-based industrial memberships

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Multidisciplinary Team versus Large Centers

Multidisciplinary Team versus Large Centers

• Millions $	• Tens of Millions $$$
• Led by strong researcher	• Led by strong, senior researcher
• Topics reinforce	• No overlap with existing centers
• Collaboration track record helps	• Collaboration track record necessary
• Busy	• Major time commitment
• Program awareness	• Agency and program culture
• PI could write quite a bit	• Team must write collaboratively
• Reviewers close to your discipline	• Interdisciplinary review
• Can quickly add partners	• Must build on authentic partnerships
• Sustainability appreciated	• Sustainability required
• Management is largely communication	• Need clear governance structure and reporting lines
• Institutional resources leveraged as needed	• Institutional role and commitment clearly delineated

If you wait till the solicitation is out...you are already too late.

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Prior to the Solicitation
Key – Work years ahead, not months

- Meet with campus leaders
- What can you drop? Is release time available?
- Travel to funded centers
- Travel to funding agency

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Prior to the Solicitation
Key – Work years ahead, not months

- Position yourself as a thought leader on this topic
- Develop real partnerships with key stakeholders

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While you write the proposal

- Grantsmanship on logistical steroids
- Build team trust and energy
- Shared vision and understanding of requirements…no siloes
- Buy in for strict review milestones

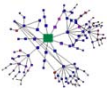- How the proposal is written is how the center is likely to be run

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3/10/2020

Action Items – Where to start?

Develop a compelling storyline

Create an integrative graphic

Outline high-level milestones and deliverables

Network

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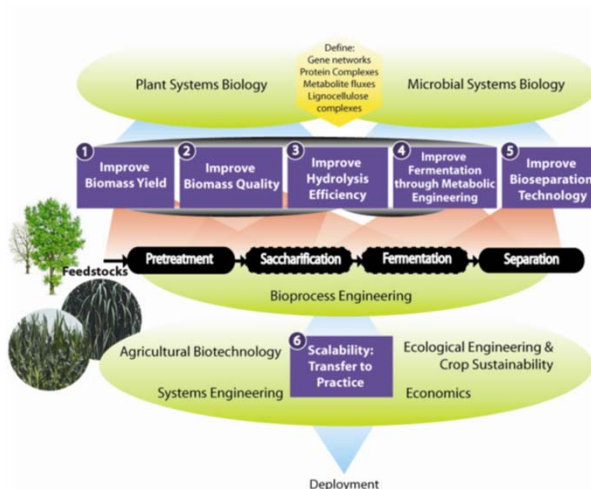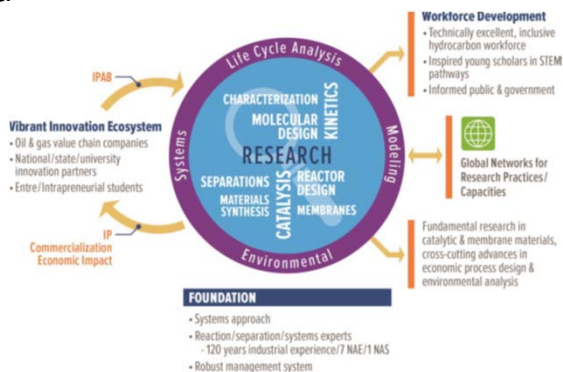

Developing a Compelling Storyline

- What is the problem?
- What has been done already to address this problem?
- What is the gap that still remains?
- What do you propose to do?

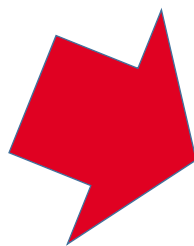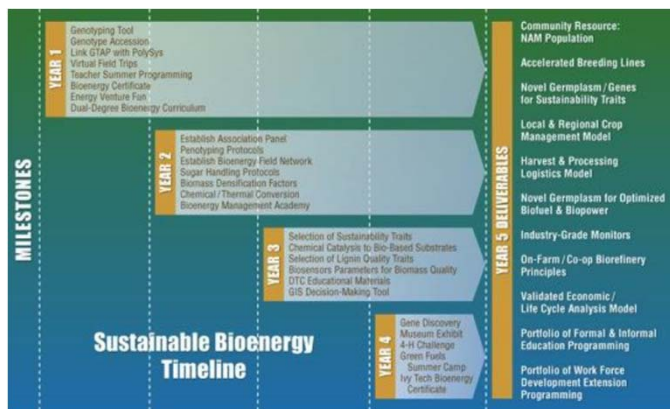University of CINCINNATI | OFFICE OF RESEARCH

Create an Integrative Graphic

- Visual Integration of all Components
- Sometimes required

Milestones and Deliverables

- High-level 5 and 10 years
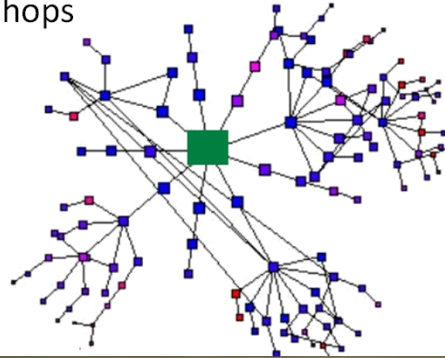- Helps Integrate Workflow

Network, network, network!

- Serve as a reviewer
- Talk to the Program Officers
- Respond to Requests for Information, if applicable
- Participate in agency workshops
- Talk to colleagues
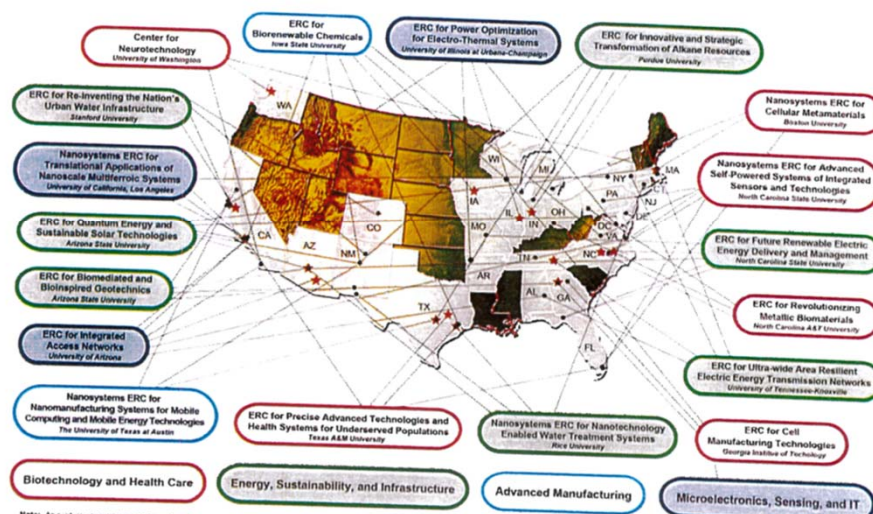
Center's Discussion
NSF ERC

Thoughts from a Reviewer

P.K. Imbrie, PhD

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The Current, "New," ERC Model

- 4 interconnected foundational components
  - Research
  - Workforce Development
  - Innovation Ecosystem
  - Culture of Inclusion
- Three layers of impact
  - Engineering Community
  - Scientific Enterprise
  - Society
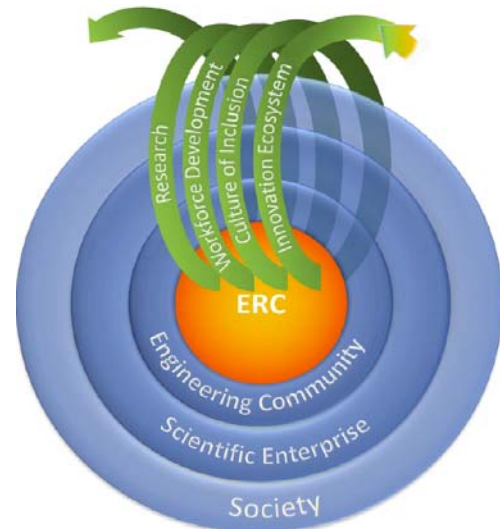
Up to 3 Phases

- Planning
- Pre-Proposals
- Full Proposals

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Planning Grant

- How will the Planning Grant be used for you to PLAN:
  - our transformational engineered systems research, i.e., what is your proposed "engineered system"?
  - your impact engineering education?
  - how you will produce diverse engineering graduate who are creative innovators in a global economy?
  - you will build partnerships with industry and practitioners to strengthen the innovative capacity of the U.S. in a global context

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Key Features

- Societal Impact
- Convergence
- Team Formation, including Effective Leadership/Management

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Planning Grant

- 6 pages – How are you PLANNING
- Merit review criteria, Intellectual Merit and Broader Impacts
- Solicitation-Specific Review Criteria
  - Why is the proposed strategy appropriate or not for developing a potential ERC including all four foundational components (research, workforce development, culture of inclusion, innovation ecosystem)?
  - If a convergent research approach is needed for the targeted societal impact, what are the discipline areas included?
  - Are the proposed strategies for engaging and developing the stakeholder community appropriate?
  - Are the proposed strategies for team formation and developing the ERC management structure appropriate?
  - What does the proposal clearly identify that will change/improve as a result of the planning grant activities?

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Pre-Full Proposals

Research
Workforce Development
Innovation Ecosystem
Culture of Inclusion

- Think about who is reviewing…. The reviewers have diverse backgrounds, do not assume they have expertise in your area. Are you writing to them?
- What is your "engineered system" in layperson terms?
- W.R.T the above focus areas:
  - WHO IS ON YOUR PI TEAM and what is their expertise?
  - How have you allocated your page resources?
  - How have you allocated your budget?
- Who are your partners (academic, industry, government, etc)?
- What are your test beds?

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Pre-Full Proposals

- Assessment issues
- Post-Doc Mentor Plan
- Data Management

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Panel

Office of Research Resources

Office of Research Web Site (research.uc.edu)

Office of Research How2 (researchhow2.uc.edu)

Research Directory (researchdirectory.uc.edu) – Ohio Department of Higher Education – Ohio Innovation Exchange (OIEx)

SPIN (research.uc.edu/funding/spin)

Limited Submissions (via web portal (rsrch-webserver.uc.edu/)) Two types – faculty research nominations and research proposals; Selection process dependent on type.

Office of Research *Findings* Please sign up to receive this monthly newsletter (https://research.us16.list-manage.com/subscribe?u=48c9bcb343e73c93605e53eee&id=6527e50384)

Office of Research Resources – NEW!!

Early Career Funding Opportunities – under Funding on main Office of Research webpage (http://researchhow2.uc.edu/search?indexCatalogue=researchhow2-dev&searchQuery=Early+Career+Funding+Opportunities&wordsMode=0)

Office of Research Annual Report – IMPACT

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Faculty Enrichment Center Partner Consultation Hours

Research Development Services (RDS)
RDS consultation hours will provide consulting, one-on-one meetings, and assistance with access to research tools. During this time, Office of Research staff will facilitate access and use of tools, education materials, research support offices, external consultants, and trainings.
1st & 3rd Tuesdays, 1:00 - 4:00pm Room 540C
sarah.clift@uc.edu

UC Press & Cincinnati Library Publishing Services (CLIPS)
UC Press/CLIPS office hours will provide consulting on how to create a manuscript proposal, publishing contract consultation and review, copyright/permissions guidance, TOME grant information, ideas on how to create digitally interactive publications, open educational resources and open access publications.
2nd Mondays, 11:00am - 1:00pm Room 540B & 3rd
Thursdays, 3:00 - 4:00pm Room 540C mark.konecny@uc.edu

The Human Research Protection Program (HRPP)
HRPP consultation hours will provide consulting for UC faculty and staff with questions about Institutional Review Board (IRB) submissions.
1st & 3rd Tuesdays, 11:00am - 1:00pm Room 540C
devan.vaughn@uc.edu

Video Captioning for Accommodations Accessibility Resources will provide consulting and assistance for closed captioning for faculty whose course has an active accommodation for captioning or for faculty interested in making their course video content accessible with closed captioning.
2nd & 4th Tuesdays 12 - 3pm, 1st and 3rd Fridays 12 - 3pm,
Room 540C lanek7@ucmail.uc.edu

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Faculty Enrichment Center Partner Consultation Hours

Advanced Research Computing (ARC) ARC consultation hours will facilitate access to and use of research computing tools, services, educational materials and training.
3rd Tuesdays, 9:00am - 12:00pm & 4th Fridays 9am - 1pm Room 540C
ARC_Info@uc.edu

Academic Personnel
Academic Personnel will provide consulting and advisory services to Unit Heads on AAUP collective bargaining agreement issues and related faculty concerns.
1st Wednesdays, 10:00am -12:00pm & 3rd Thursdays, 1 - 3pm Room 545N
kasey.underwood@uc.edu

Virtual & Augmented Reality in the Creative Innovation Room - The UCSIM | Center for Simulations & Virtual Environments Research
Provides demonstrations and consultation to help faculty learn more about how to use virtual and augmented Reality for teaching and research. UCSIM staff are available for walk-in demonstrations or other hours by appointment. *Mondays, 10:00am- 12:00pm & Thursdays,*
12:30pm- 3:00pm Room 540A
ucsim@uc.edu

The Statistics Consulting Center (SCC)
Statistics consulting services will be provided free of charge to faculty and their graduate students engaged in research by the Statistics Consulting Center (SCC) in the Division of Statistics and Data Science of the Department of Mathematical Sciences.
By Appointments ONLY
Monday 10:10 am - 12:10 pm & 1:40 pm - 3:40 pm
Wednesday 10:10 am - 12:10 pm
Thursday 10:00 am - 12:00 pm
Walk-in clinic ONLY Wednesday 1:40 pm - 3:40 pm
Schedule at https://www.artsci.uc.edu/statconsulting
Room 540C askstat@uc.edu

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Research Development and Support Series

3/2/2020 – Research Development & Support Series – Multi-PIs and Center Grants
~~3/6/2020 – Research Development & Support Series – Talking to Your Program Officers~~
3/16/2020 – Research Development & Support Series – Grant Writer's Workshop (full day) ($75 cost associated with attendance)
    8am – 4:30pm, West Campus
3/22 – 27/2020 – Research and Innovation Week
    Various locations and events
3/26/2020 – Hutton Ethics Lecture (with other Ethics Lectures)
    9am – 10:30 pm Professional Ethics and the Responsible Conduct of Research, CEAS Ethics Lecture
        and Reception – Dr. Michael C. Loui, ERC 427
    Noon – 1pm Hutton Ethics Lectureship – Citizen Science and Human Genomic Research: Ethical and
        Social Implications, Dr. Eric T. Juengst, UC Gardner Neuroscience Institute – Auditorium,
    RSVP by March 20th, lunch provided
    2pm – 3:30pm Ethics: The Secret to Effective Leadership? – Dr. Andrew Cullison, Lindner Hall 1220

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Research Development and Support Series

3/30/2020 – Research Development & Support Series – Outreach, Education and Infrastructure Panel, 10:30am – Noon, Faculty Enrichment Center, Langsam Library Room 540F

3/30/2020 – Research Development & Support Series – Early Career Workshop (half day, afternoon) 1pm – 5pm, **Lindner Center Athletics Building between Nippert and 5/3rd** , Room 450 (This is NOT the new Business Building)

4/8/2020 – Research Development & Support Series – Moving your NSF Biosketch to SciENcv, 2 – 3:30 pm, Langsam Library, Room 475

4/20/2020 – Undergraduate Scholarly Showcase (Office of Research is a sponsor again this year) 9am – 4pm, TUC

4/29/2020 – Research Development & Support Series – Building Your Team – Team Science, 11:30 – 1 pm, Faculty Enrichment Center, Langsam Library Room 540F

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