Agenda
Monday, April 30
9am – 12pm

- Research Portal
- Cybersecurity
- Conflict of Interest / Commitment
- Office of Foundation Relations
- Corporate Engagement
- Innovations & New Ventures Office
- Office for Export Controls Compliance
- Office of Research Development
- NU Clinical and Translational Sciences Institute (NUCATS)

Research Portal

Susan Held, FFRA
(Finance, Facilities and Research Administration)
Agenda

• Why do we have a Research Portal?
• What is it?
• Where does the information come from?
• Who can see what?
• Tips and favorite features
• What are the future plans for the project?

Background

• Information stored in many systems with different login and security procedures
• High level of training and effort required to answer simple questions such as “what is my balance?”
• No “faculty-friendly” options
Solution
researchportal.northwestern.edu

• Modern web application using Amazon Web Services
• Developed with significant faculty and staff input

Proposal Information

• Basic demographics from InfoEd available

• For full details, run the GM085
Proposal Information

- You can send a message to OSR requesting that a proposal be marked Unfunded

Award Information

- Data comes from NUFinancials
- Default view is high-level summary
Award Information

- Project page contains further detail

- Drillable transaction detail

- Non-Sponsored contains similar info
Protocol Information

- Approved animal (IACUC) and human subjects (IRB) protocol numbers and demographic information
- Open security – any user can see any protocol information

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<tr>
<th>Study id</th>
<th>Study Name</th>
<th>Study Principal Investigator</th>
<th>Study Status</th>
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<td></td>
<td></td>
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<td>Jan 17, 2017</td>
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<td>Jun 13, 2014</td>
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<td></td>
<td>Approved</td>
<td>Jul 23, 2012</td>
<td>May 3, 2017</td>
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Administrator Security: Sponsored Funding

- Anyone with Cognos research report access can see any proposal or sponsored project in the Portal
- Helpful for managing faculty with projects in multiple departments
- Salary detail is restricted to those with InfoEd access
Administrator Security: Non-Sponsored Funding

- Research Portal security is based on Cognos/NUFinancials Row Level Security
- Salary detail is limited to those with Cognos salary detail access

Security: Faculty

- Investigators (faculty) can see:
  - All sponsored projects where they are an investigator (any role)
  - All non-sponsored projects where they are the project manager and have NUFinancials security access
  - Salary detail on sponsored projects where they are PI or Subproject PI
  - Salary detail on non-sponsored projects they can see in the portal if they have the Cognos salary access role
General Cool Features

• Searching

General Cool Features

• Sorting
General Cool Features

- Transaction download

- Feedback button

Future Development

- More non-financial information
- More transparency into sponsored life cycle
- Ability to identify and process pending action items
- Continuing opportunity for staff to serve on focus groups
For More Information

www.it.northwestern.edu/supportcenter/

Questions?
# Cybersecurity

**Tom Murphy**  
Chief Information Security Officer

## Recent Trends and Events

**The World:**
- 14 million subscriber's data breached
- 145.5 million consumer’s data breached
- Malware on payment systems (not disclosing number of records)
- 57 million user's data breached (paid hackers $100,000 to keep quiet)

**Higher Education:**
- A hard drive containing the personal information of approximately **one million people** was stolen from a University storage unit in Olympia, WA.
- Names, birthdates, Social Security numbers and salary information for nearly 10,000 non-teaching university employees.
- Several universities victimized by one bad actor, who used common exploits to break in, then offered to sell backdoor access to their systems on anonymous web sites
Recent Trends and Events

Northwestern:

Impersonation: Increased targeted email and phishing messages purporting to be from senior leaders. These messages include malicious links, ask for wire transfers, or contain language that threatens personal and institutional reputation.

Phishing: Despite blocking over eighty million spam and phishing messages each month, our community continues to fall prey using Northwestern and personal email accounts.

Compromised accounts: At least once per week, account-holders are duped into providing their passwords either through phishing messages or clickbait on web sites.

Vulnerabilities: Meltdown and Spectre global threat based on flaws in nearly all modern computer processors.

Malware downloads: Notification from U.S. Department of Justice that five devices within our networks were infected with Fruitfly malware which turns on the camera on a Mac. Northwestern Information Technology and school support areas eradicated.

The Northwestern Environment

- Measures of scale:
  - 65,000 NetIDs
  - 80,000 wired network ports (58,000 unique)
  - 6,000 wireless access points
  - Wireless access totals (Fall 2016): 135,000 unique devices accessed by NetID, 50,000 unique devices accessed by guests
  - Over 20,000 unique, unmanaged mobile devices connect each month
  - Accessed from more than 190 countries

- Systems, servers, and storage:
  - More than 6,000 servers
  - 3.0 petabytes of storage (equivalent to 25,000 DVRs)

- Measures of volume:
  - Six gigabits per second of inbound traffic
  - 150M email messages a month

- Growth of external partnerships:
  - 100+ cloud apps
  - 60+ service provider assessments per year

- Attack Volume:
  - 80 million spam/phishing emails blocked each month
  - 16 million Internet attacks blocked each month originating from:
    - 20 compromised accounts/month
    - 10 compromised computers per month
    - 2-3 impactful events/year (loss or compromise of device, system, or account)
## Northwestern’s Top Enterprise Information Security Risks

Major potential impacts of reputational damage and loss of confidence

Northwestern’s top enterprise information security risks have been identified in alignment with the Enterprise Risk Management (ERM) framework:

- Exposure or compromise of Health Insurance Portability and Accountability Act (HIPAA)/Health Information Technology for Economic and Clinical Health (HITECH) data
- Exposure or compromise of data resulting from gaps in coordination of risk between the Feinberg School of Medicine and Northwestern Memorial Hospital Corporation (NMHC)
- Compromise of key research or institutional data
- Third-party vendor security
- Systems availability or disruption
- Breakdown in breach response
- Ransomware

### Information Security Office

Enhance role definitions to increase capacity and maturity required to protect the University’s information assets and to provide essential resources to help members of the Northwestern Community fully participate in this effort.

<table>
<thead>
<tr>
<th>Chief Information Security Officer</th>
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<tbody>
<tr>
<td>Ongoing development and delivery of a comprehensive, University-wide information security strategy and program</td>
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<tr>
<td>Provides vision and leadership for the University’s information security program</td>
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<td>Aligns program to incorporate best practices in information security</td>
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<th>Security Governance, Risk and Compliance</th>
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<td>Policy creation and maintenance</td>
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<td>Security and Compliance reviews</td>
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<td>Service Provider Security Assessments</td>
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<td>Audit response and attestations</td>
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<td>Security Reporting</td>
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<td>Awareness and Training</td>
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<tr>
<th>Security Architecture and Engineering</th>
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<td>Incident response executions</td>
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<td>Security controls and systems design, installation, and documentation</td>
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<td>Security project management</td>
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<td>Project participation</td>
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<tr>
<th>Security Operations</th>
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<td>Incident response</td>
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<tr>
<td>Security tool monitoring</td>
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<tr>
<td>Threat detection and response</td>
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<tr>
<td>Security email and ticket queue handling</td>
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<tr>
<td>Digital Millennium Copyright Act (DMCA) abuse response</td>
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<td>Phishing response</td>
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<td>Compromised account response</td>
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<th>External Service Providers</th>
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<tr>
<td>In-depth Security and Risk Assessment and Consulting</td>
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<tr>
<td>Avanade</td>
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<td>Deloitte</td>
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<td>KPMG</td>
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<tr>
<td>Nuran</td>
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<tr>
<td>PwC</td>
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<tr>
<td>Ron Swank Consulting</td>
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<tr>
<td>SecureWorks</td>
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<tr>
<td>BTAA Cmcx/SOC</td>
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<td>REIH/SAC</td>
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Information Security Support & Resources

- **FSM**
  847-491-4357 or 1-HELP (from on campus)
  
  FSMIT-policy@northwestern.edu
  
  http://www.feinberg.northwestern.edu/it/standards-policies/information-security/index.html
  
  Carl Cammarata, Senior Director, Chief Information Security Officer, 312-503-2822
  David Gundrum, Senior Information Security Analyst, 312-503-9869
  Marvina Roebuck, Senior Information Security Analyst, 312-503-5735
  Leon Tran, Information Security Analyst, 312-503-6140

- **Northwestern Information Security Office (ISO)**
  847-491-4357 or 1-HELP (from on campus)
  
  security@northwestern.edu
  
  Thomas Murphy, Chief Information Security Officer, 847-467-6422

Questions and Answers
Conflict of Interest/Commitment
Conflict of Interest Office (NUCOI)
Kate Booth
Director, NUCOI

Defining a Conflict of Interest
A situation where an individual’s external financial interests may bias or compromise
– or appear to bias or compromise –
an individual’s judgment, objectivity, or decision-making in research
How Do We Handle COIs?

- Disclosure of external interests and relationships
- Review of interests and research to identify COIs
- Elimination, reduction, or management of COIs
- Monitoring compliance with management strategies

Applicable Policies

Northwestern has three policies:
- Policy on Conflict of Interest and Conflict of Commitment
- Conflict of Interest in Research
- Institutional Conflict of Interest in Research
COI & COC at Northwestern

3 Disclosure Types:

- **Annual Faculty Disclosure** – completed once/year in February by faculty in eDisclosure
- **Annual Staff Disclosure** – completed once/year in February by staff in eDisclosure
- **Research Disclosure** – completed prior to engaging in research subject to Northwestern’s policy and on an ongoing basis

Researchers can meet research-related requirements simultaneously with annual disclosure requirements during the annual disclosure process each February. If no new interests/relationships arise during the year, annual disclosure alone is sufficient. If new interests/relationships arise outside of the annual disclosure process, researchers must update their disclosure within 30 days.

What Does a COI Look Like?

Not every disclosed interest/relationship is a COI

*Examples of apparent or actual COIs related to research:*

- Extensive consulting or other relationship with, or equity interest in, an entity sponsoring research
- Intellectual property rights for product being tested in research
- Use of students/support staff/university resources on external activities
- University dealings with entities with which a personal relationship exists
Why Are We Concerned About COI?

1. To protect the objectivity, credibility, and trustworthiness of our research, our research community (i.e. YOU), and our institution

2. To meet regulations that require the University to have policies and procedures for soliciting disclosure, review, and management of COIs

COI Regulatory Environment

- Project Terms & Conditions
- Institutional Policies
- Sponsor Requirements
- Federal Regulations: UG, PHS, NSF
Applicability of Northwestern’s COI in Research Policy:

- All **federally-sponsored** research
  - PHS, NSF, DOD, DOE, DOJ, etc.
- All **industry-sponsored** research
- All **human subjects research**, regardless of funding source
- Agencies that have adopted PHS COI regulations:
  - AHA, PCORI, Susan G. Komen, etc.
- Other sponsors with specific COI requirements

http://www.northwestern.edu/coi/policy/coi_by_sponsor.pdf

Important Terms

**Investigator**

Any individual acting as project director or principal investigator **AND**

Any other person, *regardless of position or title*, who is independently responsible for the design, conduct, or reporting of research
Important Terms

Investigator

<table>
<thead>
<tr>
<th>Role on Project/Proposal Record</th>
<th>Investigator?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Personnel</td>
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<tr>
<td>Consultant</td>
<td></td>
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<tr>
<td>Other Significant Contributor</td>
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<tr>
<td>Research Coordinator</td>
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<tr>
<td>Graduate Student / Postdoc</td>
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</table>

Individuals in these categories may or may not be Investigators subject to COI requirements. If there is any question as to whether an individual is an Investigator, the PI must confirm the assignment of project role.

Note: Department administrators or NUCOI may “deactivate” someone as an Investigator on a particular project in eDisclosure, with PI affirmation, if they are in this category and do not meet the definition of Investigator.

Important Terms

Investigator

Whether someone is an investigator is **not related** to their effort!

*For example:*
The mentor of a graduate student or postdoc on a fellowship may have 0% effort because they are advisory, and may only meet with the trainee quarterly.

Do they significantly contribute to the design, conduct, or reporting of research? **YES.**
## Important Terms

### Investigator

<table>
<thead>
<tr>
<th>Role on IRB Study</th>
<th>Investigator?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Investigator</td>
<td>YES - ALWAYS</td>
</tr>
<tr>
<td>Co-Investigator</td>
<td>YES - ALWAYS</td>
</tr>
<tr>
<td>Study Team Member</td>
<td>NO</td>
</tr>
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</table>

### Institutional Responsibilities

- Any activity that is relevant to what you do at Northwestern. Common related activities include:
  - Editing, Scientific Advisory Board, Consulting, Training
- Things that are likely *not* related to an Investigator’s institutional responsibilities:
  - Retirement funds, Community Involvement (church groups, PTA service), etc.
Important Terms

**Institutional Responsibilities**

Institutional responsibilities is a “grey area” –
Example: Your family owns a pizzeria. Disclose or not?

Does it relate to your teaching, research, or clinical responsibilities?

- “Getting a bigger piece of the pie: Capturing a larger share of a crowded market”
- Taste research on a secret formula that could be commercialized by your family’s restaurant
- Research on the health benefits of a gluten free crust that your restaurant uses

**Significant Financial Interest (SFI)**

An external financial interest for an Investigator and their Immediate Family Member, when aggregated for the 12 months preceding disclosure date, from a single entity, consisting of one or more of the specific interests in the definition
Important Terms

**Significant Financial Interest (SFI)**

SFI s include (see Appendix slides for full definition):

- Any equity in a non-publicly traded company
- Payment*, reimbursed travel*, equity in a publicly traded company†, or IP licensed outside of Northwestern valued at / exceeding $5,000*

*Excluding federal, state, or local government agencies, US institutions of higher education, academic teaching hospitals, medical center or research institutes affiliated with an institution of higher education
†Excluding retirement accounts and mutual funds

*FSM has a $0 disclosure threshold for compensation, intellectual property interests, and sponsored/reimbursed travel.

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**Financial Conflict of Interest (FCOI)**

An SFI that could directly or significantly affect the design, conduct, or reporting of research
Where To Disclose

Log-in link:

https://coi.northwestern.edu

Northwestern’s Process

Investigator names are entered into InfoEd in Personnel Section

Investigator names are fed into eDisclosure every 20 minutes

Compliance Checkpoint: Before submitting the grant, ALL investigators must have disclosed within the last year (365 days) and completed training within the last four years

InfoEd Proposal Status of the project is updated to “JIT,” “Prespend,” or any “Award” status – this triggers NU COI review of the project

Compliance Checkpoint: Before opening the chartstring, ALL Investigators must have a status of “Review Complete”
Key Compliance Points (Initial)

Investigators:
✓ Disclose SFIs
✓ Complete COI training

OSR & Departments
Proposal Submission

NUCOI & School Deans
✓ FCOI determination made
✓ FCOI managed, as applicable
✓ FCOI reported, as applicable

OSR, ASRSP, & Departments

Funding Released

Tools for Meeting Compliance Points

• COI Compliance Page in eDisclosure

• FDP Clearinghouse:
  http://sites.nationalacademies.org/PGA/fdp/PGA_070596
Disclosure Review Process

- Proposal can be submitted: All investigators have disclosed
- JIT Notification received: Proposal status set to JIT; NUCCI begins review
- NOA is received: Proposal enters Award Workflow; OSR checks for COI determinations
- Project can draw funds from sponsor: Disclosures are reviewed, any conflicts are managed & reported

A Note on Prespending

- Prior to drawing funds from the sponsor, a final COI determination must be on record for each Investigator named on the project, but **prespending** accounts can be opened prior to a final COI determination being made (i.e. when the COI review process is still underway)
  - Although prespending accounts can be opened before final COI determinations are reflected in eDisclosure, please note that each Investigator must have compliant training and disclosure dates on file prior to prespending accounts being opened
Key Compliance Points (Ongoing)

Investigators must:

- Disclose new SFIs within 30 days

- Disclose SFIs annually
  - All Staff & Faculty Investigators can do this during the Annual Disclosure process

- Complete COI training before engaging in research and every 4 years (or more frequently if required)

Roles & Responsibilities

**Investigators**
- Disclose financial interests related to their institutional responsibilities
- (PI) Identify all individuals who are Investigators on projects

**NUCOI**
- Review disclosed interests relative to research projects
- Work to manage, reduce or eliminate conflicts
- Report to sponsors, as needed
- Assist all other parties

**RAs / OSR**
- Verify compliance of disclosure & training dates prior to proposal submission / project initiation
- Assist PIs in identifying all Investigators on a project

**School Deans / Committees**
- Review cases referred by NUCOI
- Assist in managing, reducing or eliminating conflicts for faculty and the institution
Resources

- **Policy on Conflict of Interest and Conflict of Commitment:**
  http://www.northwestern.edu/coi/policy/core_coi_policy.pdf

- **Policy on Conflict of Interest in Research:**
  http://www.northwestern.edu/coi/policy/research_policy.pdf

- **Northwestern’s Conflict of Interest Office:**
  http://www.northwestern.edu/coi/index.html

- **FDP Clearinghouse:**
  http://sites.nationalacademies.org/PGA/fdp/PGA_070596

Questions?
Help/Assistance

Northwestern Conflict of Interest Office (NUCOI)
nucoi@northwestern.edu / 847.467.4515

Kate Cosgrove Booth – Sr. Compliance Specialist
k-cosgrove@northwestern.edu / 847.491.4163

Garth Huskey – Compliance Analyst
garth.huskey@northwestern.edu / 847.467.6050

Paula Foster – Program Assistant
p-foster@northwestern.edu / 847.467.4515

Significant Financial Interest

- Compensation and/or other payments for service (e.g., salary, consulting, advisory, and/or lecturing fees, paid authorship, gifts, and honoraria) exceeding $5,000*
- Equity interests (e.g., stock, stock options, or other ownership interests) in a publicly-traded entity for which the value exceeds $5,000
- Any equity interests (e.g., stock, stock options, or other ownership interests) in a non-publicly-traded entity
- Intellectual property rights and interests exceeding $5,000* (e.g., patents, copyrights), upon receipt of income related to such rights and interests
- Reimbursed or sponsored travel exceeding $5,000*

*FSM has a $0 value disclosure threshold.
Exclusions to SFI

• Compensation less than $5,000 (unless FSM)

• Any compensation received for lectures, seminars, teaching engagements, or service on advisory committees or review panels relating to federal, state, or local government agencies, an institution of higher education, an academic teaching hospital, a medical center, or a research institute that is affiliated with an institution of higher education, and compensation received from Northwestern funds

Exclusions to SFI

• Sponsored/reimbursed travel less than $5,000 (unless FSM)

• Travel reimbursed or sponsored by a federal, state, or local government agency, an Institution of higher education, an academic teaching hospital, a medical center, or a research institute that is affiliated with an Institution of higher education

• Intellectual property interests valued at less than $5,000 (unless FSM)

• Royalties received from Northwestern funds

• Unlicensed intellectual property that does not generate income

• Interests in publicly-traded entities valued at less than $5,000, as well as equity interests in any entity through personal retirement accounts and mutual funds
The Office of Foundation Relations (OFR) is Northwestern University’s central office supporting faculty and staff who seek funding from private professional foundations. OFR manages relationships with foundations to advance University goals and priorities.
Private Foundations & Why They Give

- Private foundations are mission-driven grant-making organizations that support exceptional projects and new initiatives that address specific societal problems and benefit the larger community.

- These national, professionally staffed foundations typically do not provide funding for core University needs.

- At Northwestern, foundation grants average $200,000.
  - “An institution is the lengthened shadow of one man.” – R.W. Emerson
  - “You’ve seen one foundation, you’ve seen one foundation.”
FY2017 Private Foundation Funding

- $59.6M in foundation commitments to Northwestern
- 311 proposals requesting a total of $193.9M
- 148 proposals awarded
- Top grant: $5M
- Assistance to every Northwestern School

OFR Services

http://www.northwestern.edu/foundationrelations/

- Coordinate strategic approaches to foundations
- Research foundations to identify potential funders
- Review proposals to craft persuasive arguments
- Provide materials for submission (IRS documents, financial statements, etc.)
- Partner with campus leaders and research administrators
- Track proposal submissions in development database
- Facilitate grant reporting
- Offer workshops on foundation grantseeking
Finding Private Foundation Funding

- RFP Listing on OFR Website:
  http://www.northwestern.edu/foundationrelations/finding-funders/request-for-proposals.html

- Databases:
  - Foundation Directory Online
  - Pivot (Community of Science)
  - SciVal
  http://www.northwestern.edu/foundationrelations/finding-funders/index.html

- Before contacting organizations listed in these databases, please contact OFR for advice and clearance
  - Restricted Foundations
  http://www.northwestern.edu/foundationrelations/finding-funders/restricted-foundations.html

Contact OFR

Please contact our office with any questions you may have about private foundations or whenever a faculty member you are working with is interested in seeking foundation funding.

foundationrelations@northwestern.edu
(847) 491-4590
Feinberg School of Medicine
Foundation Relations

Michelle Melin-Rogovin, Senior Associate Director
Foundation Relations
Feinberg School of Medicine
312-503-7072
m-melin-rogovin@northwestern.edu
FSM Foundation Relations: Chicago-Based Expertise for Faculty & Staff

- Assistance for faculty who need customized searches for non-federal funding opportunities.
  - Philanthropic and corporate foundations, associations, other non-profit entities that provide grant funding for research and education
- Hold individual faculty meetings, and follow up by identifying funding announcements that are the best fit for each faculty member’s research.
- Review draft applications and provide technical and analytical edits; help faculty evaluate the responsiveness of their proposal to the foundation’s RFP prior to submission.
- Provide expert guidance to faculty and staff prior to the proposal submission process regarding non-federal funding opportunities.
- Liaise with OFR and other school and university offices to identify resources to help faculty and staff submit quality applications.
Corporate Engagement

Kara Moore – Associate Director

Northwestern

Corporate Engagement | What We Do

Find & Meet Industry Contacts
- Help faculty and staff find and meet industry contacts in R&D, tech scouting, corporate foundations, university relations and more

Background Information
- Provide background information on current relationships between companies and the entire university

Proposals
- Review proposals and supporting correspondence to formal and informal corporate grant-makers

Campus Visits
- Administer scheduling, space and provisions for campus visits by corporations
Corporate Engagement | Who We Are

- Independent from:
  - McCormick Corporate Relations
  - Feinberg Corporate Relations
  - Kellogg Corporate Partnerships
  - Pritzker External Partnerships

Corporate Engagement | Pre-Award

- Identify Industry Funding Opportunities
  - If Research Funding – we work with ORD
  - If Program Funding – we send to all relevant parties
  - Ensure limited submissions coordination

- Help with Proposal Development
  - Help with common (and uncommon) deliverables
  - Indirect costs
  - Collaborate with OSR and ORD
Corporate Engagement | Post-Award

- Appropriate accounting for grants, awards, gifts
  - Checks, Wire Transfers, In-kind
  - Gift vs Grant
  - Coordination with OSR, OGC, ASRSP

- Relationship Management
  - Share appropriate information
  - Find new corporate connections for PIs and Administrators

Dashboard Highlights:
- Metrics
- Philanthropy
- R&D Snapshot
- Key Leaders & Alumni
- Recruiting
- Recent Involvement
- Company Profile

Source: Corporate Engagement Dashboards (Kara Moore)
What We Do: Examples of Highlighting NU Strengths & Faculty Research

Corporate Engagement | Relationship Management & Cultivation

Alignment: Let’s Go Places Together

Northwestern Strengths
- Multidimensional & Adaptive
- Powerful Collaborations
- Pioneering Innovation
- Meaningful Impact

Toyota Smart Mobility
- Interactive Intelligence
- Vehicle Enhancement
- Vehicle Connected Intelligence

Source: Toyota Pitch Deck
Northwestern | Multidimensional and Adaptive

- Advancing global sustainability and energy solutions through transformational research, interdisciplinary education and public engagement
- Dozens of affiliated faculty from 5 different schools across the University
- Partnerships with several companies, active participation on executive council

**Research areas:**
- Creating sustainable cities and managing the risks of climate change
- Solar energy and fuels
- Catalysis and sustainable materials
- Nanotechnology for environmental remediation

Partnering with You
Corporate Engagement | Next Steps

- Reach out to us to brainstorm companies or gather intel on corporate campus information
- Update NU Scholars with PI information
- Sign up for the Foundation Relations & Corporate Engagement RFP newsletter
Today’s Goals

1. Who are we & what do we do at Northwestern?
2. What does the invention disclosure process look like?
3. What should research administrators know about INVO?
4. How can you learn more about what we do at INVO?
INVO | Our Mission

To catalyze the translation of Northwestern innovations to benefit the public

- Become a source of impactful innovations and products that improve lives
- Become a magnet for entrepreneurial talent

INVO | Our Activities

Technology Transfer
- IP Support (Consultation, Filing, Office Actions, etc.)
- Technology Evaluations
- Marketing Efforts

Innovation & Entrepreneurship Programming
- Workshops
- Seminars
- Mentoring
- Internships
- Coordination with Classes, etc.

Space
- The Garage
- Faculty Hub
- University Memberships (mHub, 1871 & MATTER)

Funds
- N.XT Fund ($10M)
- NuSeeds Fund ($4M)
INVO | Areas of Innovation

Technology Transfer

Technology transfer activities focus on moving technology from the University to the public domain

BAYH-DOLE ACT of 1980
Change in IP Ownership

PRE-BAYH-DOLE

- <250 issued patents/year
- 30k university patents
- 5% led to new products

POST-BAYH-DOLE

- 5-6k issued patents/year ('12-'14)
- 80k university patents ('94-'14)
- 10-15% led to new products ('12-'14)

Impact of Bayh-Dole on IP*

<table>
<thead>
<tr>
<th>Significant Economic Impact of Bayh-Dole Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000 startup companies</td>
</tr>
<tr>
<td>&gt;$500B GDP increase</td>
</tr>
<tr>
<td>3.8M US jobs</td>
</tr>
</tbody>
</table>

*AUTM US Licensing Activity Survey Highlights 2012-2014
INVO Staff

INVENTION MANAGEMENT TEAM

- Alice Liffner, PhD
  Executive Director
- Michael Moore, PhD
  Life Sciences
- Nicole Jansnick, JD, PhD
  Life Sciences, Copyright
- Gwenyth Humphreys, PhD
  Life Sciences, Research Tools
- Wenling Lan, PhD
  Life Sciences

NEW VENTURES TEAM

- Andrea Mirogno
  Finance & Administration
- Arjen Guirt, PhD
  Physical Sciences, Engineering
- Sarah Kemper, PhD
  Chemistry
- Isabella Ortiz, JD
  Engineering, Computer Science
- Anne Isabelle Henry, PhD
  Chemistry, Biotechnology, BAIE

- John Haugen, JD, PhD
  Assistant General Counsel
- Dimitra Georgopoulos, PhD
  Life Sciences, Medical Devices
- Lisa Dhar, PhD
  New Business Ventures for Engineering
- Nick Naul, JD
  Venture Funds
- Sonia Kim, PhD
  Marketing & Educational Programs

INVO | FY17 Stats

- 211 INVENTIONS DISCLOSED
- 529 PATENT APPLICATIONS
- 210 AGREEMENTS EXECUTED
- $7.5 MILLION IN LICENSING REVENUES
- 185 PATENTS ISSUED
- 12 STARTUPS
The Invention Disclosure

An **INVENTION DISCLOSURE** is Northwestern’s record of an invention, the inventors involved, sponsorships, & other public disclosures and publications.

Inventors should plan to submit their invention disclosure 3-4 weeks prior to a public disclosure
- Posters/abstracts/proceedings
- Journal articles, book chapters
- Conference presentations
- Some departmental seminars & thesis defenses
- Some grant proposals

**DISCLOSING AN INVENTION TO INVO DOES NOT PROTECT AN INVENTION.**
**A PATENT APPLICATION MUST BE SUBMITTED TO THE USPTO**

Reasons to Disclose to INVO

1. **PROTECT COMMERCIAL POTENTIAL**
   INVO can provide feedback on how to proceed in the commercialization process.

2. **PROTECT INTELLECTUAL PROPERTY**
   If IP protection is appropriate, INVO can maximize IP protection if invention is disclosed in advance of public disclosure.

3. **FULFILL NU’S RESPONSIBILITY TO REPORT TO RESEARCH SPONSORS**
   INVO must report all inventions to respective public and private research sponsors.

4. **IMPROVE MARKETING WITH INDUSTRY PARTNERS**
   INVO can help provide industry with insight into available technologies and the research that is taking place at the university.
The Invention Disclosure

Invention Disclosure Form

<table>
<thead>
<tr>
<th>Definition of Inventorship vs Authorship*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy of Grant Information*</td>
</tr>
</tbody>
</table>

Northwestern
Invention Disclosure Form

- Describe the invention in a less technical manner.
- What is the relevance to the public?

- Describe the invention in a more technical manner.
- This helps our team and outside counsel to understand how this invention is distinct from other inventions.

- Note work that is similar and differentiate. Better to disclose information upfront.
Invention Disclosure Form

Provide COMPLETE contact information.*

- Name should be a LEGAL name—what’s on a passport and legal documents.
- For patent filing, we need to include the country of citizenship.
- Please inform us of any address changes for future correspondences & royalty checks.
- Electronic signature is acceptable.

Life of a Patented Technology

1. DISCLOSURE SUBMISSION
2. PRIOR ART ANALYSIS
3. INVENTION ASSESSMENT
4. PROVISIONAL PATENT APP
5. UTILITY PATENT APP
6. US ISSUED PATENT
7. INTERNATIONAL PATENT APP
8. FOREIGN ISSUED PATENT

1 YEAR
3-5 YEARS
30 DAYS
Important Take-Homes

Complete the disclosure as thoroughly as possible.  
Be available to meet with IM to discuss your technology.

Respond to IM as quickly as possible as they may have time-sensitive questions.  
Send relevant updates to IM, such as future public disclosures or technology development.

Commercializing Technologies

1. Explore Additional Sponsored Research Opportunities
   INVO coordinates with other offices to review IP stipulations. 
   Ideally, several weeks are needed to review these agreements.

2. License Technology to Existing Company
   INVO helps identify and negotiate license agreements. 
   If there’s interest, IMs contact faculty to discuss.

3. Create University Startup
   INVO has Startup Guide online.
Northwestern Licensees (Past & Present)

Our Startup Playground
Northwestern Startups

NU Startup Funding & Acquisitions

$56M+  SBIR/STTR Funded Active Startups (2006-2016)

$306M+  VC-Backed Startups

$2.72B+  Acquired Startups
Recent Issues for Discussion

Pre-Award
- Commercialization Plan or IP Provisions – Reach out to INVO/Invention Manager early

Disclosures – Key items
- Employee ID to identify personnel @ NU – our system is linked to myHR
- Funding accuracy
  - Corrections result in costly fees to NU – each one can be hundreds of $
  - When possible, include grant Project Award Summary as an attachment to disclosure

Agency Requests
- If you are ever asked from an agency about reporting, please reach out to INVO early
- iEdison Reporting – INVO takes care of this; Please reach out to INVO/Invention Manager if asked by agency
- Foundation/Private funding compliance – INVO takes care of this; Please reach out to INVO if asked by agency

Ways to Learn More about INVO

WEBSITE: Visit www.invo.northwestern.edu
INVO NEWSLETTER: Sign up on our home page
SOCIAL MEDIA: Follow us on Twitter (@INVOatNU)
STUDENT OPPORTUNITIES: INVO Practicum Interns and N.XT Associates
THANK YOU

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Export Controls:
What Are They and
How Do They Impact Research?

Lane Campbell
Director, Office for Export Controls Compliance
(OECC)
Overview and Background

- “Export Controls” are federal rules and regulations governing the shipment or transmission of items out of the U.S., including disclosures or transfers of technical data to foreign persons, whether in the U.S. or abroad.
Overview and Background

- Export control concerns arise due to three primary reasons:
  - The characteristics of the item itself (e.g. if it has military applications)
  - The destination of the item (both the country and the individual or entity) – See Entity List
  - The suspected end use of the item
Overview and Background

- Export controls are intended to address several concerns:
  - Protect U.S. national security
  - Implement U.S. foreign policy
  - Maintain a military and economic edge

Regulating Agencies

- Department of Commerce
- Department of State
- Department of Treasury
Restricted Parties

- The federal government publishes various lists which indicate certain parties (both individuals and companies) subject to restrictions.

- Primary lists include the Entity List, Specially Designated Nationals, Denied Persons, and Debarred Parties.

- Northwestern is now using screening software to conduct comprehensive and dynamic screening of restricted parties.

Embargoed Nations

- The U.S. has embargoes in place against several countries:
  - Cuba, Iran, the Sudan, Syria, and North Korea
  - Engagement with any of these countries requires a review of potential export control concerns
Export Controls Impact on Research

• “Deemed exports” involve the release of items subject to export controls to a foreign national.
  - The item is “deemed” to have been exported to the home country of the foreign national.
  - “Foreign national”: not a US citizen, a lawful permanent resident, or a “protected person.”

Fundamental Research Exclusion

Fundamental Research vs. Proprietary Research
Fundamental Research Exclusion

• The “Fundamental Research Exclusion” ("FRE") was established in a memo signed by President Reagan
  
  – NSDD-189 Memo, issued in 1985
  
  – Characterizes “fundamental research”, “the results of which ordinarily are published and shared broadly within the scientific community."
  
  – “It is the policy of [the federal government] that, to the maximum extent possible, the products of fundamental research remain unrestricted.”

Fundamental Research Exclusion

• The FRE is intended to control the flow of science, technology, and engineering information produced in federally-funded fundamental research at colleges, universities, and labs.

• Has subsequently been reaffirmed by 2 additional memos issued by the Department of Defense (DOD).
Fundamental Research Exclusion

- The FRE is destroyed when:
  - Sponsor is provided with the right to approve publications
  - Foreign nationals are restricted from participating in the research
  - “Side deals” are struck, wherein the researcher agrees to cooperate in some way with the sponsor to act inconsistent with “fundamental research”

Beyond the FRE

- The FRE does not apply to all university activities, e.g.:
  - All overseas physical shipments must be in compliance with export control regulations.
  - Anything provided under a non-disclosure agreement is potentially subject to controls.
  - Restricted parties and embargoes must always be considered when evaluating export control compliance concerns.
Consequences of non-compliance

- Failure to comply with export control regulations may have many consequences

- Criminal charges
- Monetary penalties
- Damage to reputation
- Loss of export control privileges

J. Reece Roth Case

- Professor Emeritus at the University of Tennessee who illegally exported sensitive technical information to China.
- Traveled to China with his laptop, which contained sensitive information.
- Shared information with foreign nationals, despite being put on notice by his employer and by the research contract.
In the News

• UMass Lowell was recently fined $100,000 for the unlicensed export of equipment to a company in Pakistan.
  – At the time, the company was listed on the Entity List.
  – The equipment was classified “EAR99.”

• Earlier this year, a former postdoc at the University of Michigan was criminally charged with exporting equipment to his home country of Iran.
  – The defendant faces up to 20 years in prison.
  – The violation involved the shipment of humanitarian items to an embargoed country.

The Role of OECC

• Established November 2012

• Intended to provide a central resource dedicated to export controls compliance.

• Coordinates with other offices to ensure that Northwestern is in compliance with the export control regulations.

• When in doubt, contact us.
Questions and Contact Information

OECC
Office for Export Controls Compliance
Northwestern University
633 Clark Street
Rebecca Crown Center, North Tower 2nd Floor
Evanston, Illinois 60208
http://exports.northwestern.edu

Lane G. Campbell, JD, MBA
Director
lcampbell@northwestern.edu
Phone: 847-467-4063

Office of Research Development
Our Mission

The Office of Research Development promotes, stimulates and advances the diverse research enterprise across Northwestern University through:

- Facilitating Interdisciplinary Research Programs
- Supporting the Pursuit of Funding Opportunities
- Promoting the Submission of Outstanding Proposals
- Guiding Early Career Investigators
Constituents and Stakeholders

- Northwestern Research Community
  - Deans, Faculty, Researchers, Research Administrators, Post-docs, Graduate and Undergraduate Students
- Federal Funding Agencies
- Office of Foundation Relations
- Office of Government Relations
- Office of Corporate Engagement
- Office for Sponsored Research
- Partners: Affiliates, Industry, Academic and Non-Academic Institutions

Facilitating Interdisciplinary Research Programs

- Supporting the Pursuit of Funding Opportunities
- Promoting the Submission of Outstanding Proposals
- Guiding Early Career Investigators
Research Program Development

- Anticipate New Interdisciplinary Federal Agency Initiatives
- Support Investigator Initiated Ideas & Centers
- Identify, Connect, and Guide Formation of Collaborative Teams
- Coordinate Preliminary Workshops
- Assist in Development of a “white paper”
- Support Proposal Development Process

Large Interdisciplinary Proposal Development

Programmatic Support

- Develop “Writer’s Outline”
- Guide the conceptual development and writing of: vision, administrative core, management plan, broader impact, education, outreach, postdoc mentoring plan, data management plan, data sharing plan, etc.
- Advise on budget development
- Letters of support
- Sponsor’s summary statements
- Resubmission
Large Interdisciplinary Proposal Development

Project Management Support

• Generate time-line/roles and responsibilities framework
• Coordinate video/audio conference meetings (PIs, administrators)
• Prepare meeting agenda
• Provide meeting minutes
• Liaise with local RA, OSR, external partners, internal resources, local and external grant writers
• Manage internal and/or external review
• Coordinate site visits

Large Interdisciplinary Proposal Development

Research Administration Support

• Liaise between RA and technical team
• Confirm registrations for all personnel
• Facilitate subcontract procurement
• Format current & pendings and biosketches
• Consolidate facilities documents
• Review all documents as 2nd set of eyes
Large Interdisciplinary Proposal Development: Seed Funding

**NU-Interdisciplinary Program 1-2-3**

- **I1**: $1,000 for a workshop; rolling submission
- **I2**: $15,000 for expenses pertinent to the submission of a large proposal; rolling submission
- **I3**: $120,000/year for up to 2 years for promoting effective team assembly, developing track record of collaboration, generating preliminary data and submitting a large/center proposal to an external sponsor; annual due date

- [http://www.research.northwestern.edu/interdisciplinary123/](http://www.research.northwestern.edu/interdisciplinary123/)

Requirements:
- Interdisciplinary team (at least 2 schools and 3 departments)
- Innovation
- Societal impact

ORD LINC Series

- Quarterly Event
- Promote anticipated federal funding opportunities
- Bridge communication between schools on a federal agency initiative
- Transfer knowledge between disciplines
- Establish new interdisciplinary connections

Past Events: “Microbiome” and “Internet of Things”
Facilitating Interdisciplinary Research Programs
Supporting the Pursuit of Funding Opportunities
Promoting the Submission of Outstanding Proposals
Guiding Early Career Investigators

New Weekly Funding Opportunity Alert (ORD INSIGHT)

Anticipate, monitor, identify, and disseminate federal funding opportunities and related information to faculty and staff

- **News and Events**
  - Agency strategic plans, proposer days, meetings/webinars
  - Notice of intent to publish a FOA – NIH
  - Dear Colleague Letters – NSF
  - Information on new federal funding initiatives

- **Funding Opportunities**
  - FOAs screened weekly for eligibility and relevance to NU research
  - FOA summary is hyperlinked to Pivot database listing
  - "Limited Submission" funding opportunities
  - Divided into 6 research areas: Biomedical & Life Sciences; Engineering & Computer Science; Learning Sciences; Media, Arts & Humanities; Physical Sciences; Social Sciences & Law
Ongoing “curated” list by research area in Pivot database

Individual FOA listing in Pivot database (or grants.gov)
I. Facilitating Interdisciplinary Research Programs

II. Supporting the Pursuit of Funding Opportunities

III. Promoting the Submission of Outstanding Proposals

IV. Guiding Early Career Investigators
Promote the Submission of Outstanding Proposals

- Personalized service to faculty from all disciplines (smaller scale proposals, single investigator, etc.)
  - Clarify and confirm sponsor’s expectations and guidelines
  - Enhance faculty communications with program officers
  - Advise on strategic approaches to developing a proposal
- Outreach and resources
  - “ORD Presents” workshops (DARPA, large grant proposal, shared instrumentation, NSF CAREER)
  - Bring program officers to Northwestern
  - Provide institutional subscription to “Research Development and Grant Writing News”
- Manage the Institutional Limited Submissions Process

Limited Submission

- Funding opportunities for which the sponsor limits the number of applications that may be submitted per institution
- ORD manages the institutional process for selecting nominees for Federal, Foundation, and Corporation funding opportunities
- Northwestern has established a transparent, efficient and effective process for selecting successful nominees

https://ord.northwestern.edu/limited-submissions
Northwestern’s Limited Submission (LS) Process

- Identification of LS funding opportunities
- Dissemination of announcements
- Collect Internal Letters of Intent
- Collect Internal Proposals
- Notification
- Internal Review
- Nomination
- Sponsor Proposal Due

Limited Submission: Dissemination of Announcements

- Targeted and inclusive dissemination
- Subject: LIMITED FUNDING OPPORTUNITY: …..
- Summary of opportunity and eligibility criteria
- Link to the sponsor’s website
- Key dates: LOI, internal proposal submission, notification, sponsor deadline
- Instructions: LOI form, internal proposal components, upload information
- All announcements and their status are posted on ORD’s website
- You can opt-in to receive all announcements
Limited Submission: LOIs

- Submission of the LOI by the deadline is **required**, but no binding
- Based on institutional interest:
  - First come, first served
  - Applicants are authorized by ORD to submit a proposal to sponsor
  - A competition is required, all applicants are invited to submit internal proposals

Limited Submission: Review Process

- The Limited Submission Advisory Committee is charged with selecting the most nationally competitive applicants
- Senior faculty from FSM, WCAS, McC, SESP and SoC
- Humanities ad hoc panel is invited as necessary
- Ex officio and ad hoc reviewers are invited as appropriate
- Panel review (video-conference between campuses)
- Selection is requires approval by the VPR
Limited Submission: Notification

- All candidates are notified by email by the stated deadline
- Feedback is provided to all applicants
- Nominees are invited to work with the Office of Foundation Relations on Foundation proposals
- OSR GO is notified

Limited Submission: Outcomes

- Packard Science and Engineering Fellows
  National awardee each year 2007-11, 2013
  (of an annual total of 16 fellows from 50 Universities)

- Pew Biomedical Scholars
  (of an annual total of 21 scholars nationally)
Facilitating Interdisciplinary Research Programs
Supporting the Pursuit of Funding Opportunities
Promoting the Submission of Outstanding Proposals
Guiding Early Career Investigators

Guiding Early Career Investigators

- Reach out to new faculty, present at new faculty orientations
- Consult and perform customized funding opportunities search, recommend collaborators
- Develop a strategy of applying to prestigious fellowships
- Provide NSF CAREER consultations
- Provide resources for early career investigators on ORD’s website
- Host “ORD Presents” Series
Guiding Early Career Investigators: 
ORD Presents

- NSF CAREER Workshop (5/3/17)
- Introduction to Funding Opportunities
- Early Career Funding Opportunities
- Broader Impacts Fair

Please contact ORD if you...

- Are working on a complex proposal
- Find a limited submission opportunity not on our website
- Want to receive ORD Insight and LS FOAs
- Have a question about a federal funding opportunity
- Want to advertise internal seed funding or research events
- Have ideas for future events or thoughts on ways we can improve
Thank you!

Questions??

Speeding transformative research discoveries to patients and the community
NUCATS is At Your Service!

• A centralized hub of resources available to your research team
• We provide **training, tools, and services** to support investigators across the full spectrum of clinical and transitional science research

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**Education & Professional Development**

• **Opportunities for research staff**
  – Master of Science in Regulatory Compliance (MSRC)
  – Good Clinical Practice and Clinical Research Coordinator Training (Live & Online Education)
  – Introduction to Research Online Modules
  – Annual translational research conference

• **Opportunities for investigators**
  – Training grants and workshops for early career faculty
  – Team Science training modules
  – Mentor development
Clinical Research Support

- **Budget & Finance**: study budget preparation, billing and reconciliation
- **Regulatory Compliance**: assists with IRB process and FDA submissions
- **Recruitment & Retention**: research participant recruitment strategy development, creation & distribution of marketing materials
- **Study Coordination Support**: clinical research nurse and non-nurse coordinators for hire
- **Clinical Research Unit (CRU)**: at Lurie and NMH

Data Science, Informatics & Analytics

**Secure, Web-based Applications**
- **REDCap** (Research Electronic Data Capture): Data collection forms
- **Study Tracker**: Clinical trial management system
- **Recruit**: Research registry system

**Northwestern Medicine® Enterprise Data Warehouse (NMEDW)**
- **NMEDW**: Repository of research data on more than 6 million people
- **i2B2**: a free tool to determine the feasibility of conducting a clinical trial

**Biostatistics Collaboration Center (BCC)**
- Biostatistics
- Epidemiology
- Research Design
Community Engaged Research Support

- **Develops partnerships** between community, clinical, public health and policy sectors
- **Workshops**, seminars and programs on community and stakeholder engagement
- **Seed grants** for community-academic research teams
- **Consultations** for design and implementation of community engaged/based projects

Innovation, Commercialization & Entrepreneurship

- Partnership with INVO
- Support for new drug and device development
- Expertise in technology commercialization and innovation
- Funding opportunities
Galter Health Sciences Library & Learning Center

Research Services
• Access to more than 8,600 e-journals, 3,000 e-books, and 300 databases
• Consultations
• Training and workshops
• Bioinformatics and biosciences support

Scholarly Services
• Preserving and sharing scholarly content with DigitalHub
• Impact measurement and evaluation
• NIH Public Access Policy
• Biosketch development

Stanley Manne Children’s Research Institute

• Resources and services for Lurie Children’s researchers
• Research Scientist Navigator
• Lurie Clinical Research Units
• Coordinator and Research Staff Services Pool
• Pilot funding
• IRB Authorization Agreement for joint review panel for studies that involve both adults and children
Additional Resources

NUCATS Studio Consultations:
• Gives investigators in the planning stages of a new program or center grant an opportunity to leverage existing NUCATS resources and services

Chicagoland Clinical and Translational Science Award (CTSA) Shared Resources:
• Investigators and research staff at Northwestern University, University of Chicago, and University of Illinois at Chicago CTSAs have access to select resources at the other institutions

Trial Innovation Network (TIN):
• A network of 64 other CTSAs that helps execute Multi-center clinical trial or study better, faster, and more cost-efficiently through leveraging the skills and expertise at other networks

Become a NUCATS member

NUCATS Membership allows you to:
• Request NUCATS services
• Request a consultation
• Apply for funding
• Get the latest news about NUCATS

To join visit: membership.nucats.northwestern.edu
Cite and Acknowledge the CTSA

NUCATS Institute is funded in part by a CTSA grant from the NIH. Publications are the key metric that Congress, the NIH, and Northwestern use to demonstrate effective use of grant funding.

If NUCATS assists you with research please remember to cite the grant.

To learn more visit: nucats.northwestern.edu/about/ctsa-resources.html

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