Introduction to Sponsored Research

Welcome to the mini course, Introduction to Sponsored Research
Learning Outcomes

• Define sponsored research
• Explain why institutions engage in sponsored research
• Identify the players involved in sponsored research
• Identify the sponsored project lifecycle phases

Narration:
When you have completed this mini course Introduction to Sponsored Research, you will be able to:

• Define sponsored research and identify its notable features
• Explain the sponsored research landscape and the reasoning for engaging in sponsored research
• Identify the various individual and institutional players involved in sponsored research
• Identify the phases in the “sponsored project lifecycle”, in other words, understand how a sponsored project is initiated and executed

Let’s begin with some basic terminology and background information to frame the discussion.
In the context of discovery and invention, people often talk about “R&D” or Research and Development. What these two letters represent forms the basis for the entire sponsored research enterprise. First the “R”:

What is R&D?

- Research & Development is commonly referred to as R&D
What is research?

noun (re·search \\ri-ˈsərch, ˈrē-,\) 

• Systematic investigation or experimentation aimed at the discovery of new information to increase the stock of knowledge and the practical application of this knowledge.

Narration:
The dictionary defines research as:
• Systematic investigation or experimentation aimed at the discovery of new information to increase the stock of knowledge and the practical application of this knowledge.
Narration:
From the dictionary definition we can extract the two primary categories of research: Basic Research and Applied Research.

- Basic research is study that is meant to expand scientific knowledge not to create or invent something. For example, uncovering the structure of DNA.

- Applied research is designed to solve practical problems of the modern world and improve the human condition. For example, addressing the effectiveness of a technique to improve memory.

Now comes the “D” in “R&D”: Development.

Development is the process of applying existing knowledge toward the production of materials, devices, systems, or methods that are useful to society.

In other words, development involves taking the outcomes of basic and applied research to create useful products. An example of this would be creating a genetic test for Alzheimer’s disease.
Narration:

Now what differentiates “research” from “Sponsored Research”? Sponsored research can be defined as research and development activities (including training) that are externally-funded and have specified project plans, accountability measures, and outputs.

The sponsored research process typically begins with an idea from an individual scientist – or group of scientists – that they think warrants further exploration. That scientist - generally referred to as the principal investigator or PI - writes a proposal to a potential sponsor in search of financial support for pursuing the idea. The proposal is reviewed by the sponsor, and if approved, an award is made to the PI’s institution. Over the course of the project period of the award, the team along with the PI executes the project and produces various research outputs. These outputs can range from publishing data to training students in a certain field.

Later in this mini-course we’ll talk more about this sponsored research lifecycle and sponsored research at Northwestern. First let’s take a quick look at the history of research sponsorship in the United States and the relationship between sponsors and recipients.
Narration:

In looking at the history of research sponsorship – particularly research at institutions of higher education – we are essentially tracing the evolution of federal government research initiatives.

- **Land Grant Institutions**: In 1862, The Morrill Act granted federally-controlled land to states to be sold in order to raise funds to establish educational institutions focused on practical agriculture, science, and engineering. A few years later, the mission of these “land-grant universities and colleges” was expanded to include research.

- **Early 20th Century / WWII**: This investment by the government in university-based research, though, was not to become the norm for many years to come. Through the 1930’s, most federal research sponsorship followed a model of mission-oriented research in agriculture, national defense, and natural resources carried out by government employees in small government laboratories. University research was supported largely by private foundations, and universities rarely sought federal funds for R&D. This changed during World War II as federal support of R&D grew immensely in size and complexity, and large numbers of academic researchers were mobilized to work in their own institutions' laboratories on war-related projects, such as the Manhattan Project.

- **Late 20th Century**: In the immediate postwar period, expanding research support remained a priority of the federal government. The budget of the National Institutes of Health was increased exponentially; the National Science Foundation was founded; and new research-intensive agencies addressing environmental and energy issues emerged, culminating in the creation of the Department of Energy.

- **Present Day**: In recent years we have witnessed an expansion of public-private partnerships in conducting research as well as the use of research funding as an economic stimulus tool. The American Recovery and Reinvestment Act contained extensive funding for science, engineering research and infrastructure and was responsible for a sizable amount of academic R&D expenditures from 2010 to 2012.
Why do universities conduct research?

• Generate and disseminate knowledge
  – Train students
  – Impact society

• Maintain high-quality environment
  – Attract the best faculty and students
  – Contribute to national rankings
  – Build and upgrade facilities

Narration:
So why do universities engage in research?

Above all, to generate and disseminate knowledge. In other words education, the primary purpose of every academic institution:
• Research supplements the educational environment and helps to train students.
• Research also enables a university to impact society by contributing to broader scientific conversations.

A university also has an interest in maintaining a high-quality educational environment. Developing a robust research program and producing impactful research allows a university to:
• Attract the best faculty and students
• Bolster its national rankings and
• Leverage outside investment to stretch funds available for building and upgrading facilities.
In the case of Northwestern, research is explicitly stated as part of its mission: Northwestern University is committed to excellent teaching, innovative research, and the personal and intellectual growth of its students in a diverse academic community. For more about research at Northwestern, we encourage you to watch this short video from Vice President for Research, Jay Walsh.

Northwestern boasts over $600 million in annual sponsored research funding from a wide variety of sponsors. The research enterprise at the university has great depth and breadth as illustrated by the following examples.

For additional examples sponsored research projects at Northwestern University, go to discover.northwestern.edu.
Why do sponsors provide research support to universities?

- **Common Ideology**
  - Commitment to dissemination of knowledge
- **Infrastructure**
  - Top-of-the-line facilities and equipment
  - Research administration backbone
  - Close relationships with hospital affiliates
- **Top Talent**
  - Faculty: Leaders in their field with established relationships
  - Students: The best and brightest

Narration:

On the flip side, why would sponsors be interested in funding research at institutions of higher education?

First, common values: Sponsors - specifically, public and non-profit sponsors - and universities may have similar ideologies when it comes to dissemination of knowledge to the public. However, more commonly, sponsors are interested in funding research at universities for more practical reasons:

Second, infrastructure. Universities have large, established infrastructures to support complex science and technology programs.

- This infrastructure includes top-of-the-line facilities and equipment.
- The research administration backbone – that is, the personnel, procedures, and systems - required to successfully execute sponsored research projects.
- Many research universities also have close working relationships with hospital affiliates, which are extremely attractive to sponsors that fund clinical trials and other medical research.
Third, top talent.

- Within a university there exists a broad range of faculty researchers, who are leaders in their respective fields. These faculty have preexisting professional networks, which enable them to easily collaborate across disciplines and with colleagues at other institutions.

- In addition, institutions of higher education feature the best and brightest students. These students will become the next generation of investigators, and – from the perspective of sponsors – the next generation of potential employees.
Each sponsor has its own funding focus and its own means of engaging researchers. While the federal government is the most significant source of sponsored project funding at Northwestern University – as well as at many other research institutions across the country - it is just one of many types of sponsors who support research.

Northwestern receives sponsored research support from a varied mix of sponsors, grouped into five broad categories: Federal government, state and local governments, foundations / nonprofits, industry, and international entities.

The federal government includes 26 grantmaking agencies. At Northwestern, the National Institutes of Health (NIH), National Science Foundation (NSF), Department of Defense (DOD), and the Department of Energy (DOE) are our most common sponsors.

Northwestern also receives sponsored funding from state and local governments (for example, the Illinois Department of Public Health); from private foundations and other nonprofits, such as The Bill and Melinda Gates Foundation and the American Heart Association; and, from private industry entities, such as AbbVie.

Northwestern also receives sponsored funding from sources abroad, including foreign governments, corporations and non-government organizations, such as the European Commission.
Funding Mechanisms
• Formal means through which a sponsor contracts with a recipient institution to provide funding
• Common Types of Funding Mechanisms

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*See next slide for more information

Narration:
- Funding Mechanisms are the various formal means through which sponsors contract with recipient institutions to provide funding.
- The four most common types of funding mechanisms encountered in sponsored research are: grants, cooperative agreements, contracts and subcontracts. Let’s briefly look at each of these types.

Grants
- A grant is a financial assistance mechanism whereby a sponsor gives funds or products to a recipient for a specific project and usually requires some level of reporting and compliance by the recipient. In order to receive a grant, a potential recipient typically has to submit a funding proposal, either proactively or in response to a specific solicitation from a funder.

Cooperative Agreements
- A cooperative agreement is a second type of financial assistance mechanism, very similar to a grant. The difference between the two is that with grants the PI is driving the project activity whereas with cooperative agreements the sponsor is significantly involved in the scientific or programmatic activities. This involvement can take the form of guidance, coordination, and/or participation in the work performed under the agreement.
• At Northwestern University, the sponsor types from which we typically receive grants are government agencies, foundations, and nonprofits. We do not commonly receive grants from industry sponsors; rather, industry sponsors typically engage through contracts.

Contracts
• A contract is a type of procurement mechanism in which a sponsor provides funds to a recipient in exchange for a specified product. A contract outlines performance requirements, such as project milestones and deliverables, and will be subject to one of two pricing methods: Cost Reimbursable or Fixed Price. Cost Reimbursable contracts provide funding based on actual expenditures, and the sponsor pays for all allowable costs incurred to execute the project. Fixed Price agreements commit the recipient to completing a defined scope of work for a set amount. This is essentially a performance-based agreement whereby the sponsor is only obligated to pay when performance objectives are met.
Subcontracts

• Now, before we move on, let’s talk about subcontracts or subawards.

• A subcontract is different from the other funding mechanisms we discussed in that it involves three parties: the originating or prime sponsor, the prime recipient, and the subrecipient or subawardee. A subcontract is the formal agreement by which the recipient of sponsored funding (the prime recipient) engages an outside party (the subrecipient) to perform a defined statement of work as part of a larger sponsored project. Funding along with award terms and conditions “pass-through” from the primary sponsor to the subrecipient via the prime recipient.

• The diagram on screen illustrates this relationship. In this example, Northwestern University is the prime recipient. Northwestern is the issuer of the subcontract and would be responsible for the performance of the subrecipient when reporting back to the originating sponsor.

• For more information about subcontracts, including the Northwestern University Policy on Subcontracting on Sponsored Programs, visit the Subcontracts page on the OSR website by clicking on the on-screen link.
In addition to funded sponsored projects, Northwestern University also enters into various non-financial, legally-binding research agreements. The most common of these are:

- **Data Use Agreements** (DUA) govern the exchange of data between investigators at Northwestern University with entities and investigators outside the university.

- **Non-Disclosure Agreements** (NDA) are also known as Confidentiality Disclosure Agreements (or CDAs). These agreements describe confidential information that two parties wish to share only with one another for some purpose but not with any third parties.

- **Facility Use Agreements** are used when a researcher needs to enter into an agreement to access facilities or non-public information at an outside entity; for example, a national laboratory or a private company.

- **Material Transfer Agreements** are agreements used to govern the transfer of research materials between organizations.

If you would like to find out more about Agreements, you can find information by clicking the onscreen link.
Narration:
The university sponsored research environment has some distinct characteristics:

It is competitive but collaborative. Sponsors have funding priorities and funding limits, and top researchers are in constant competition with one another for these limited funds. However, successful researchers do not work alone.

A Principal Investigator works with a team of people that includes other investigators – both at their home institutions and across organizations – as well as lab technicians, program managers, post-doctoral researchers, undergraduate students, graduate students and research administrators. This team is necessary in order to have sufficient manpower and expertise to execute projects in a timely manner and in accordance with government regulations.

In large part – if not entirely - because the federal government is heavily involved in sponsoring research at universities, the research environment is also very highly regulated. As such, institutions are publicly accountable for their research-related activities. They must be transparent and accountable with their financial operational policies and procedures as well as other compliance mechanisms.
Narration:
The goal of those involved in research administration is to uphold these operational standards and ensure responsible stewardship of sponsored research dollars. In doing so, research administrators help protect the institution, maintain an environment that allows research programs to flourish, and ultimately, sustain the institutional research enterprise over time.

Financial management and compliance are major parts – but not the only aspects - of administering sponsored projects. Research Administration is here to support Northwestern’s investigators.

More specifically, Research Administration is defined as the provision of guidance and support in the development, management, and implementation of research projects. These projects range from basic sciences research to clinical trials to training programs.

Research administration encompasses a wide range of functions, including:
• Preparing and submitting proposals
• Negotiating contracts and accepting awards
• Post-award financial management and
• Ensuring completion of required institutional endorsements.

As you move through the rest of this mini-course and other mini-courses, you will learn more about these and other research administration functions and where they fall in the lifecycle of a sponsored project. The important thing to note is that research administration is involved throughout the entire sponsored research process and helps to keep this process moving forward.

Now let’s talk a little more about the individuals and individual entities involved with the various aspects of sponsored research at Northwestern University.
Narration:
The Principal Investigator, Departments and Schools, and Central Administration offices work together to execute and administer sponsored research at Northwestern.

Over the next few slides, we’ll discuss these different players and examples of tasks carried out by each of them.

If you have attended one of the Research Administration Training Seminars offered quarterly by the Office of Research Integrity (ORI), then you are already familiar with some of the Office for Research Roles and Responsibilities. If you would like to find out more about ORI training or Research Roles, click the onscreen links for information.
The Principal Investigator, or PI, has the authority and responsibility to direct the research project or program. The PI oversees all research activities and is responsible for the oversight of the fiscal and administrative management of research. The PI conducts research in an objective and unbiased manner in compliance with institutional policies and governmental regulations.
Narration:

Each school at Northwestern has a dean’s office, which includes the school dean, research dean, and all members of the dean's administration. This office manages the research enterprise within a school. It provides local direction and resources for the training and implementation of Federal regulations as well as sponsor and University policies and procedures.

Within each school are departments and centers, which are overseen by a chair or center director, respectively. The chair or director oversees the individuals engaged in research in the department or center and ensures that their unit’s research objectives are consistent with those of the school and University.

Administrative research personnel include staff in departments, centers, and institutes, such as department or business administrators, research administrators, and research coordinators. They support the PI by providing financial and administrative management in accordance with all applicable regulations and policies.

Technical research personnel work in concert with administrative personnel to ensure adherence to regulations and policies. Technical personnel include individuals such as post-doctoral researchers, lab managers, research analysts, and study coordinators. They participate in the design, execution, and management of research activities and perform research-related tasks.
As its name implies, Central Administration is made up of a number of central offices that work with PI’s and school and departmental staff across the entire university.

Central administration responsibilities include:

- Guiding proposal development and submission and overseeing the financial and administrative management of awards, including the proper financial accounting of sponsored funds.
- Ensuring compliance with institutional policies and Federal regulations related to ethical concerns and safety practices. This includes ensuring the safety of animals and humans in the conduct of research as well as ensuring that research is conducted in an ethical and unbiased manner.
- Managing space and training in select shared and core facilities on campus
- Facilitating external partnerships and sponsor identification, including developing sponsor relations and working to bring academic innovation to market.
Of the various central units that provide support for sponsored research, many of them fall within the Office for Research and the Office of Financial Operations. PIs and departmental staff will interact with many, if not all, of these central offices over the lifetime of a sponsored project. The two with which they will likely have the most involvement are the Office for Sponsored Research (or OSR) and Accounting Services for Research and Sponsored Programs (or ASRSP).

- **OSR** is involved with proposal review and submission as well as non-financial post-award management. OSR reviews and negotiates agreements and provides institutional endorsement, including acceptance of an award.

- **ASRSP** provides support for financial reporting, collecting revenue, coordinating audits, and processing transactions related to sponsored projects.

While each central office has a specific functional role in the administration of sponsored research, one should not think of them as isolated units. OSR and ASRSP, for example, work in close parallel with one another in the management of every sponsored project. Together, the central offices form a solid administrative structure for conducting research at Northwestern. Like a jigsaw puzzle, when the individual pieces come together, the resulting whole is much more than the sum of its parts.
Narration:
For the remainder of this introductory course, let’s take a brief look at an overview of the major steps in the sponsored project life cycle.

• This cycle begins with a series of steps that are commonly referred to as “pre-award administration”. These steps include identifying funding opportunities, proposal development/submission, award negotiation and acceptance.

• Award set-up – in other words, the point in the life cycle when an award is formally established – is a transitional step from pre-award administration to “post-award administration”. The post-award steps include award management (which occurs over the life of the award) and award closeout.
Identifying Funding Opportunities

• Investigators decide which funding opportunities to pursue

• Opportunity Sources
  – Sponsor-initiated search for researchers
  – PI’s professional network
  – Solicitations (FOA, PA, RFA, RFP)

• Funding Search Resources
  – Office of Research Development
  – Corporate Engagement
  – Office of Foundation Relations
  – SciVal Funding
  – InfoEd SPIN
  – Community of Science Pivot

Narration:
• Before an investigator prepares a proposal, they first decide which opportunities to pursue. There are a number of ways that investigators become aware of funding opportunities and identify potential sponsors aligned with their research interests:
• Some sponsors proactively search out particular researchers and institutions that they believe can help them achieve their goals.
• Investigators may become aware of an opportunity through their professional network (for example, through a pre-existing relationship with a corporate partner.)
• Perhaps most commonly are solicitations for proposals by sponsors. Sponsors often communicate their research priorities via public solicitations for research project proposals. Terminology can vary across sponsors, but common names for solicitations include Funding Opportunity Announcements (FOAs), Program Announcements (PAs), Requests for Applications (RFAs), and Requests for Proposals (RFPs).
• A number of resources exist to help investigators search for these funding opportunities. Listed here are key resources used by Northwestern investigators. You can find additional information by clicking the onscreen links.
Narration:

- The next phase in the Sponsored Project Life cycle is Proposal Development and Submission.

- One of the primary functions of the Office for Sponsored Research (OSR) is the campus-wide facilitation of proposal submission to external sponsors; the electronic system used at Northwestern for sponsored projects is InfoEd. For more information regarding InfoEd, please click the onscreen link.

- During the Proposal Development process the Research Administrator will work closely with the Principal Investigator; typically the research administrator completes the administrative components of the proposal, and the PI completes the technical portion. Before submitting the proposal to OSR for review, the research administrator will route it through the system to obtain any required reviews and approvals from departments and schools. OSR then reviews all proposals, requests any changes necessary to comply with institutional or agency guidelines, and then facilitates the submission of the proposal to the sponsor.
Narration:
The sponsor receives proposals and the proposals undergo a peer review process to double check accuracy of the science and research. If the sponsor decides to fund a proposal, they will notify the Office for Sponsored Research and the investigator. If an award notice is sent directly to a department or PI, it is important to inform OSR as soon as possible. OSR has the institutional authority to review, negotiate, and endorse sponsored project agreements.

- Not all awards need to be negotiated before they can proceed to being set up at NU, but some may contain provisions that are unacceptable to the institution. Awards that frequently require negotiation are foundation awards and federal contracts.
- OSR ensures that terms of awards align with the university’s mission and with university policies. OSR manages the negotiation with the sponsor, working to secure acceptable - and sometimes more favorable - terms. Two major issues OSR often addresses are 1) the investigator’s right to publish research results and 2) retaining rights to intellectual property.
- OSR also provides institutional endorsement of award, in other words institutional acceptance of an award and the associated terms of that award.

- For more about the award negotiation and acceptance process, including information about unilateral and bilateral agreement types, please view the onscreen link for the “Awards” sections of the OSR website.
Narration:
Once the award negotiations are complete and the award has been accepted, we are ready to proceed with award set-up. It is at this phase in the Sponsored Project Life Cycle that we transition from pre-award to post-award administration.

• The Office for Sponsored Research receives, establishes and processes awards in internal systems.
• OSR also assures that all necessary conflicts of interest have been addressed and that any protocols needed to conduct research with human participants or animal subjects have been approved.
• Then OSR establishes a chart string in the university’s financial system in order to manage expenses associated with the project.
• When all of these things have been completed, OSR conducts a final data quality check.
Narration

• The longest phase in the life cycle is award management. Award management includes a wide variety of tasks and responsibilities and emphasizes compliance with the terms and conditions of each award.

• Typical award management activities include:
  • Assigning, planning, charging and monitoring expenses posted to a sponsored project;
  • Making project modifications, such as changes in work scope or personnel, in accordance with the terms and conditions of an award and sponsor policies
  • Ensuring that any applicable human or animal protocols are reviewed annually and that approvals remain current; and
  • Submitting required technical and financial reports to the sponsor.

• For the duration of the award, the unit, which again is comprised of Schools and Departments, is responsible for managing and monitoring the award. It is important for the unit (Schools and Departments) to read the award terms and conditions and reach out to the appropriate central administrative unit when necessary.

• Northwestern offers a wide variety of resources to help faculty and staff with Award Management and Financial Monitoring, including InfoEd Proposal Tracking, Grants Management reports available in the Cognos reporting tool; NU Financials for post-award financials; and OSR’s post-award request management system: ESPR. For more information on any of the system resources, please click on the onscreen links.
Narration:
The last stage is the Award Closeout. Typically the award specifies a deadline by which the project needs to be completed, both programmatically and financially.

- The close-out of a performance period of an award requires careful planning and preparation.
- When the end of a project is approaching, ASRSP sends out reminder emails to the investigator and research administrators.
- Research administrators work with their PIs to ensure that all relevant project expenses are charged to the chart string and that any deficits are reconciled. ASRSP manages the submission of final financial reports.
- Unit (Schools and Departments) administration staff works with the investigator to prepare and submit the final technical, invention and financial reports.

And with that, the Sponsored Project Life Cycle is complete.
Review of Course Topics

- You should now be able to define the following terms:
  - Research
  - Sponsored Research
  - Grant
  - PI
  - Sponsor
  - Funding Mechanism
  - Subcontract
  - Research Administration

- You should now be able to answer these questions:
  - Why do universities conduct research?
  - What funding mechanisms are financial assistance mechanisms vs. procurement mechanisms?
  - What are the phases of the Sponsored Project Lifecycle?
  - What are the functions of OSR?
  - What are the five common sponsor types that provide support to universities?

Narration:

- Here are the topics and definitions that have been covered in this mini course, Introduction to Sponsored Research. Take a few minutes to read through the questions and see if you can answer them. If you are unclear on the answer to any question, you may return to the slides that cover the topic. Remember that you can locate slides by referencing the slide titles on the right of your screen. Pause the course now while you answer each question.

- And finally, remember that, for a refresher, you can view this course again at any time.
Narration:

• Before you take the quiz and finish the course, there are a multitude of central administration and school specific resources available across as well as the Office for Research Integrity (ORI) Research Administration Training Seminar, which is offered quarterly, alternating between Chicago and Evanston campuses).

• For more information on the any resources please click the onscreen links.
Congratulations!

- Thank you for participating in the *Introduction to Sponsored Research* mini course!

- Please do not forget to fill out a post course evaluation

*Your feedback is meaningful in order to provide the most effective training resources, exercises and content as possible.*

Narration:

Congratulations!

You have now completed the Introduction to Sponsored Research mini course.

You have been introduced to the world of sponsored research at Northwestern University and the established Northwestern procedures for complying with the regulations and policies as it pertains to research.

Please do not forget to fill out a post course evaluation. Your feedback is meaningful in order to provide the most effective training resources, exercises and content as possible.