RESEARCH AT THE UNIVERSITY OF DELAWARE
• Why do Universities Engage in Research?
• Federal Landscape for Research Funding
• What do Sponsors’ Funds Pay For?
• What and Why Core Facilities?
• Technology Transfer & Business Development
A Place of Discovery, Innovation and Impact
Why do Universities engage in research?
Morrill Act of 1862

…without excluding other scientific and classical studies and including military tactic, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.
Federal Govt–University Pact

The publicly and privately supported colleges, universities, and research institutes are the centers of basic research. They are the wellsprings of knowledge and understanding. As long as they are vigorous and healthy and their scientists are free to pursue the truth wherever it may lead, there will be a flow of new scientific knowledge to those who can apply it to practical problems in Government, in industry, or elsewhere.
The University of Delaware exists to cultivate learning, develop knowledge and foster the free exchange of ideas. State-assisted yet privately governed, the University has a strong tradition of distinguished scholarship, research, teaching and service that is grounded in a commitment to increasing and disseminating scientific, humanistic and social knowledge for the benefit of the larger society.
Federal Landscape for Research Funding
R&D as a Percentage of the Federal Budget

Source: AAAS, Budget of the U.S. Government FY2017
Federal Awards are Very Competitive

National Institutes of Health

National Science Foundation

Overall FY 2018 MPS Funding Rate: 27%

Overall FY 2018 ENG Funding Rate: 19%
A Few Facts from UD

- 1800 Proposals
- 708 Active Awards
- $1.04B Requested in Funding
- 2336 Human Subjects Protocols
- 162 Animal Protocols
- 13 Audits

FY19
Research Expenditures—By Sponsor

+$11\%$ vs. FY18 and record high

$161$ MILLION

- Other: $18.2\%$
- State of DE: $22.9\%$
- HHS: $16.4\%$
- DOD: $9.3\%$
- DOE: $5.5\%$
- NSF: $8\%$
- Other Federal: $19.6\%$
What Do Sponsors’ Funds Pay For?
Costs of Federally Sponsored Research

The total cost of federally sponsored research includes a combination of both direct and facilities and administrative (F&A) costs. Both types of expenditures are key to an institution’s ability to conduct cutting-edge research. F&A consists of the construction and maintenance costs of laboratories and high-tech facilities; energy and utility expenses; and safety, security, and other government-mandated expenses. These costs are real and research cannot be conducted without them.

Direct costs - These expenses solely cover research and include lab supplies and equipment, salaries and stipends for researchers and graduate students, and travel costs for conducting and sharing research.

Upkeep of any building space not used directly for federally funded research, such as classrooms or lobbies, is not covered by F&A reimbursement.

Secure data storage, internet, telecommunications, and high-speed data processing

Utilities – ventilation, heat, air conditioning, water, and lighting

Radiation and chemical safety, including safety training and hazardous waste disposal

Personnel in support of research, including security, financial, administrative, technical, maintenance, and janitorial staff

Costs of federal, state, and local regulatory compliance, including human and animal safety review boards

Advanced research lab equipment

Library and research facilities

COGR
Council On Governmental Relations

AAMC
Association of American Universities

AIRI
Association of Independent Research Institutions

Association of American Medical Colleges
Direct costs – salaries and stipends for researchers and graduate students

lab supplies

travel costs for conducting and sharing research.
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F&A costs –
Administrative, maintenance & custodial staff
Utilities
IT
Library
Radiation & chemical safety
Compliance
Facilities & Administrative Costs
Also known as F&A, indirect costs, overhead

Real Costs incurred while conducting research

- related to providing facilities where research is performed
- related to the administrative management of the research
- “costs that are incurred for common or joint objectives and, therefore, cannot be identified readily and specifically with a particular sponsored project”

F&A is reimbursement for costs already incurred in the performance of research (federally created cost recovery mechanism).
Facilities & Administrative Costs
Myths

F&A is a centrally administered “tax” on research that allows universities to “profit.”

F&A is a partial reimbursement for costs already incurred.

Direct costs are the only “real costs” – F&A diverts dollars away from research.

F&A costs are “real costs” without which faculty could not perform research.

Higher F&A rates hurt faculty chances of a proposal being funded.

No evidence that higher F&A rates influence federal award decisions.
**F&A Rates are Negotiated with the Federal Government**

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<th>Organized Research (OR)</th>
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Admin. Cap Imposed by Gov't
Under-recovery
What and Why Core Facilities?
Core Research Facilities

“Centralized shared research resources that provide access to instruments, technologies, services, as well as expert consultation and other services to scientific and clinical investigators. The typical core facility is a discrete unit within an institution and may have dedicated personnel, equipment, and space for operations. In general, core facilities recover their cost, or a portion of their cost, of providing service in the form of user fees that are charged to an investigator's funds, often to NIH or other federal grants…Core facilities may be fiscally supported by institutional funds, Federal funds, external revenue, other funding, or any combination of these.”

NIH Definition
Core Research Facilities

Necessary to recruit, retain and advance faculty research, which supports recruitment, retention and mentoring of students to degree completion.

Permits UD to be more competitive for national awards– center grants, etc.

“When the UD Nanofab came online we saw a clear uptick in the quality of applicants to our graduate program.” UD Faculty Member

“UD’s state of the art core facilities allow me to do work I can’t do elsewhere and make me more competitive for funding.” UD Faculty Member
UD Core Research Facilities

- Advanced Materials Characterization Lab
- Bioinformatics Core Facility
- Center for Biomedical and Brain Imaging
- Center for Translational Cancer Research
- Comparative Pathology Laboratory
- DBI Biologging Center
- DPA Material Characterization Lab
- DRI Clinical Research Core
- DRI Cytochemistry Core
- Fischer Greenhouse and the Growth Chamber Facility
- Mass Spectrometry Core Facility
- NMR Laboratory
- Protein Production
- Proteomics and Mass Spectrometry Core Facility
- UD Nanofabrication Facility
- UD Sequencing and Genotyping Center
- W.M. Keck Center for Microscopy and Microanalysis
- X-Ray Crystallography Laboratory
Core Research Facilities

Revenue by Category

- Customer Revenue: 52%
- Institutional Support: 30%
- Grants for Core Support: 16%
- Other: 2%

Expenses by Category

- Labor: 54%
- Equipment: 19%
- Maintenance Contracts: 16%
- Consumables: 8%
- Admin. Tools: 1%
- Other: 2%
UD Nanofabrication Facility

• 28 distinct faculty users.

• FY17-19: UD awards that were used in UDNF total $36.8M.
Technology Transfer and Business Development
Bayh-Dole Act, 1980

Non-profits, including universities, and small businesses may elect to retain title to innovations developed under federally-funded research programs.

Universities are encouraged to collaborate with commercial concerns to promote the utilization of inventions arising from federal funding.

Universities are expected to file patents on inventions they elect to own.
UD Tech Transfer and Business Dev. Activity
FY10-FY19 (FY19)

Disclosures received: 490 (45)
Provisional patent apps: 460 (42)
Utility/PCT patent apps: 272 (33)
Licensing agreements: 65 (6)
Start-ups: 30 (2)

UD Start-ups Created
A non-profit Incubator.
DELAWARE INNOVATION SPACE

**Companies**
- 27 (+8)
  - VIP = 12 (+4)
  - Early Stage = 10 (+2)
  - Anchor = 3 (0)
  - Graduates = 2 (+2)
  - Failed = 0

**Jobs**
- 244 (+34)
  - Early Stage = 122 (+25)
    - Anchor = 107 (0)
    - DISI = 6 (0)
    - Graduates = 9 (+9)

**Capital Raised**
- >$120M
  - E1 = $90M
  - E2 = $30M
  - E3 = $5M
  - E4 = $1M
  - E5 = $950k
  - E6 = $300k

**DISI Occupancy**
- 88%
  - All occupiable space = 88% (+1%)
  - Early Stage = 32% (+12%)
    - Anchor = 56% (-11%)
    - Available = 12% (-1%)
Innovation Community
September 2019

Plus 12 additional companies in our Virtual Incubator Program