

## UNC Research Opportunities Initiative (UNC ROI)

### Introduction

The NC General Assembly provided support in the 2014-2015 budget bill ([Senate Bill 744](#)) for: *“Game-Changing Research (16011) – Funds focused investments in faculty, research and scholarship in six priority areas: advanced manufacturing; data sciences; defense, military, and security; energy; marine and coastal science; and pharmacoengineering. The investment in data sciences shall include data sciences programs at UNC Charlotte.- \$3,000,000. Recurring.”*

The UNC ROI will capitalize on current demonstrated strengths of UNC in the sectors targeted in the strategic directions document [“Our Time, Our Future”](#) by investing up to \$3,000,000 per year in seed funding and programmatic support.

Two to four proposals will be funded in the first round. Proposals may request from one to three years of funding. Facilities and Administrative (F&A) costs are not allowed. Full proposals will be invited from the pool of pre-proposals that:

- Significantly advance UNC research and scholarship in one or more of the six areas described above;
- Demonstrate the potential for near-term and long-term impact;
- Develop programs with high potential to leverage significant internal support and external funding from government, corporate, and foundation partners;
- Describe a realistic sustainability plan.

Important dates (tentative):

- September 23, 2014 - Solicitation release
- October 7, 2014 at 10 am – Q and A telecon. Call (919) 962-2732
- October 28, 2014 - Pre-proposal due
- November 5, 2014 - Pre-proposal decision
- December 5, 2014 - Proposal due
- February 16, 2015 - Earliest funding start

### Background

UNC is home to world-class researchers across many fields. There are areas where, working in partnership with each other and with businesses, foundations, nonprofits, and others, the University can make a real difference. Those areas included in the UNC Strategic Plan are:

Advanced manufacturing integrates information technology, design methodology, rapid prototyping, automation, computation, software, sensing, networking, and new materials in the production of products, as well as the systems that support and enable them. Examples include robotics and other automation; additive and traditional machining; computation and visualization equipment. Advanced Manufacturing approaches and techniques can apply to cutting-edge technical fields such as aerospace, nanotechnology, and biopharmaceuticals as

well as to traditional industries such as furniture, textiles and motor vehicles, all of which are part of the North Carolina manufacturing economy.

Coastal and marine science: North Carolina has hundreds of miles of ocean beaches, thousands of miles of estuarine coastline, and millions of acres of sounds, creeks, and marshes. As such coastal and marine-related activities are important to the State's economy, both in traditional sectors (eg. tourism, fisheries, hazard resilience, and marine heritage), and in emerging areas (eg. ocean energy and marine biotechnology). UNC System faculty members are leaders in areas such as marine biotechnology, wind energy, coastal sustainability, marine aquaculture, climate change and marine ecosystem health. It is incumbent on UNC to be at the forefront of understanding our coast.

Data science: The volume of data available for making decisions has increased exponentially over the past ten years, creating a corresponding need to make sense of and take advantage of that vast data to inform decision-making in fields including scientific research, homeland security, defense, energy management, and many more. Nearly every sector of the U.S. economy struggles with growing data volumes, resulting in "big data" becoming an increasingly important research field. The data management and data analytics sector is worth over \$100 billion and is growing at a rate of almost 10% per year, and there are other big data markets such as health care genomics, financial, emergency management, climate, and agribusiness. UNC has strengths in big data that, if collectively harnessed, can provide national leadership in this important sector.

Defense, military, and security: North Carolina has a robust and growing military community, with the third-largest military population in the United States distributed among six military installations. North Carolina also is home to more than half of all U.S. Special Operations Forces, including three of the five subordinate commands of the U.S. Special Operations Command. UNC's distinct talents and cutting-edge technology coupled with our strong relationships with these operational end users — and with the U.S. Army Research Office located in Research Triangle Park — offer a distinct advantage: face-to-face interactions with military customers, combat developers, and program managers to better understand DOD and Homeland Security research & development needs, programs, and processes.

Energy touches the lives of every North Carolinian every day. Critical activities ranging from transportation to operation of factories and offices to heating and cooling our homes hinge on our ability to produce and consume energy. Recognizing that most sources of easily accessible energy are limited and many are non-renewable, UNC must be at the forefront in making discoveries that will fuel our state and the world in the future, and we have a robust foundation on which to build. Investment in a comprehensive effort to take full advantage of the wide array of energy research, development, outreach, and training provided by these and other programs, in collaboration with both private and nonprofit organizations will yield scientific advances in the field and economic advances for the state.

Pharmacoengineering is the science behind the development of materials and technologies to improve the delivery of therapeutic and diagnostic agents and can lead to new generations of drugs, drug delivery systems, and novel means to assess drug safety and efficacy through imaging and biosensing. Targeted investment in pharmacoengineering within the UNC system will build on the success of medicine and life science at UNC-Chapel Hill and engineering at NC State, and leverage the success of the existing joint Department of Biomedical Engineering between those institutions. The focus of this investment will be on building collaborations between UNC-Chapel Hill's Schools of Medicine, Pharmacy, and College of Arts and Sciences, and NC State's Colleges of Engineering, Agriculture and Life Sciences, Science, and Veterinary Medicine, as well as with private companies and nonprofits.

### **Pre-proposal**

Pre-proposals must be submitted electronically as a single PDF to Dr. Christopher Brown at [csbrown@northcarolina.edu](mailto:csbrown@northcarolina.edu) **by October 28, 2014**. While more than one institution may be involved, a single institution must be identified as the primary. The Chief Research Officer of the primary institution (home campus of the principal investigator) must be the submitter. Pre-proposals from other individuals will not be accepted.

The pre-proposal must contain the following (12 point font):

- Front matter (1 page) including the title of the project, a list of 5 key words, principal investigator contact information, other key personnel and their campus affiliation, a 100-word synopsis of the proposed project, total amount requested, and duration of project.
- Project description (1 page) that specifically addresses how the proposed activities align with the goals of this RFP. The description should include sufficient detail that reviewers can evaluate the appropriateness and feasibility of the proposed plans.
- Preliminary combined budget and justification, including a brief timeline for usage of funds (1 page). F&A is not allowed. Cost-matching is not required, but if it is part of the proposed budget it must be included.

While not a requirement, pre-proposals that significantly involve two or more UNC institutions are desirable. There is no limit on the number of pre-proposals per institution, but the Chief Research Officer of primary institution must prioritize multiple submissions.

Pre-proposals may be reviewed by colleagues both inside and outside of the specific discipline(s). Therefore in order to be ranked highly, pre-proposals should use language that can be understood by those lacking expertise in the specific area(s).

The period of performance may range from one to three years. Funding may commence as early as February 16, 2015

Pre-proposals (and invited proposals) will undergo review based on the following:

- Intellectual merit of the proposed activity

- Importance of the project to advancing knowledge or understanding in its own field or in other fields
- Originality of the proposed project
- Qualifications of the principal investigator and team to carry out the project
  
- “Game-changing” nature of the proposed project
  - The possibility that the project will lead to major research opportunities that can be supported by federal agencies, industry, or non-profits
  - The degree to which the project builds on existing strengths
  - The opportunity for significant commercialization via patents, licensing, spin-offs, and/or investment from the private sector
  - The significance to North Carolina of the near-term (4-6 months) and long-term impacts
  
- Project fit and feasibility
  - How well the project advances the UNC strategic plan
  - How well the project advances the participating universities’ strategic plans
  - Clear targeting of one or more of the six areas
  - Clear description and feasibility of the milestones and metrics
  - Reasonableness of the budget
  - How realistic is the long-term sustainability plan

### **Proposal**

Invited proposals must be submitted electronically as a single PDF to Dr. Christopher Brown at [csbrown@northcarolina.edu](mailto:csbrown@northcarolina.edu) by **December 5, 2014**. While more than one institution may be involved, a single institution must be identified and the primary. The Chief Research Officer of the primary institution (home campus of the principal investigator) must be the submitter. Proposals from other individuals will not be accepted.

Proposals must contain the following (12 point font):

- Front matter (1 page) including the title of the project, a list of 5 key words, principal investigator contact information, other key personnel and their campus affiliation, a 200-word synopsis of the proposed project appropriate for general readership, total amount requested, and duration of project.
- Letter of concurrence from the chancellor of each UNC institution involved. If more than one UNC institution is involved, either multiple letters or a single jointly signed letter is acceptable.
- Project description (8 pages max) that specifically addresses how the proposed activities align with the goals of this RFP. The description should include sufficient detail that reviewers can evaluate the appropriateness and feasibility of the proposed plans. This section must outline a clear set of goals that are aspirational yet attainable, an outline of plan of work with milestones and a timeline, a clear set of metrics, and a plan for sustainability.

- A single budget and justification, including projected expenditures by quarter (no page limit). Cost-matching is not required, but if it is part of the proposed budget it must be included in this section. F&A is not allowed.
- One- to two-page biosketches of the principal investigator and all key personnel. There is no limit on the number of biosketches.

While not a requirement, proposals that significantly involve two or more UNC institutions are desirable.

The American Association for the Advancement of Science (AAAS) will assist in the review of the invited full proposals. Each proposal will be assigned to three highly qualified third party reviewers from outside the state of North Carolina, selected for their expertise in the particular technical area(s) of the proposal.

The period of performance may range from one to three years. Funding may commence as early as February 16, 2015.

Proposals will undergo review based on the following:

- Intellectual merit of the proposed activity
  - Importance of the project to advancing knowledge or understanding in its own field or in other fields
  - Originality of the proposed project
  - Qualifications of the principal investigator and team to carry out the project
- “Game-changing” nature of the proposed project
  - The possibility that the project will lead to major research opportunities that can be supported by federal agencies, industry, or non-profits
  - The degree to which the project builds on existing strengths
  - The opportunity for significant commercialization via patents, licensing, spin-offs, and/or investment from the private sector
  - The significance to North Carolina of the near-term (4-6 months) and long-term impacts
- Project fit and feasibility
  - How well the project advances the UNC strategic plan
  - How well the project advances the participating universities’ strategic plans
  - Clear targeting of one or more of the six areas
  - Clear description and feasibility of the milestones and metrics
  - Reasonableness of the budget
  - How realistic is the long-term sustainability plan

Annual reports on the activities and progress will be due on the anniversary of the funding initiation start date. Other reports will be requested on an as-needed basis.

Proposed activities may include, but are not limited to:

- Support for faculty hires;
- Shared equipment, core facilities, and lease/upfit of research space (labs, shops, studios);
- Student (graduate and undergraduate) and postdoctoral support;
- Industrial research collaborations;
- Proof-of-concept funding for early data collection;
- Workshops on emerging multidisciplinary research areas;
- High-level seminar series to promote networking for innovative project formation;
- Concept development and white papers for large scale efforts;
- Travel to establish partnerships and to interact with federal and industry program officers;
- Identification and recruitment of partners (industrial, academic or government);
- Support for release time, travel, workshops, and other expenses associated with conceptualization and preparation of large grants;
- Creation and support of resources such as websites, research collaboration sites, or other social networking tools to facilitate large scale research projects.

### **Inquiries**

Questions regarding this solicitation may be directed to:

Dr. Christopher Brown

Vice President for Research and Graduate Education

University of North Carolina System

[csbrown@northcarolina.edu](mailto:csbrown@northcarolina.edu)

(919) 962-4619