

Research and Scholarship

Submitted by NC State Task Force on Research and Scholarship

The NC State Task Force on Research and Scholarship concludes that in order to increase NC State's competitiveness and national stature, NC State must substantially improve its research and scholarship environment, incentives, and support. Strategies to achieve this improvement will include developing new programs to enhance cross-disciplinary interaction, creating mechanisms to support development of active research programs, and centralizing many core facilities. The overall goals of these actions should be to: 1) facilitate new cross-disciplinary collaborative research activities; 2) facilitate a sense of research community to approach and solve problems of scientific and societal value; 3) increase faculty participation; 4) provide leadership development opportunities to help faculty pursue and achieve new advances in research and scholarship; and 5) provide every graduate student and post-doctoral fellow an experience in cross-disciplinary scholarship. Elevating the level of faculty and graduate student research activity will also provide expanded opportunities to support larger numbers of undergraduate research experiences.

Faculty-driven programs

To achieve NC State's research and scholarship goals, the task force proposes a set of faculty-driven university programs.

Fields of study

Departments and/or colleges with comparable or overlapping education and scholarship missions should align into defined fields of study that overlay and encompass existing faculty, departments, and colleges on campus with congruent research interests. To promote multi-discipline research, these fields will comprise and be led by faculty within the specified fields. Each field of study will be empowered to develop graduate course curricula and degree options for graduate students. The fields will be established as "research homes" for some faculty, although the primary appointment for active research faculty will remain within departments. As fields of study are defined, some current departments may be combined and/or subsumed within the field. Some thought needs to be put into how teaching assignments and evaluation in the RPT process occurs. For example, teaching assignments of participating faculty should be focused on the goals of both the field of study and the faculty home department. Similarly, the field of study should have a formal contribution to evaluation during the RPT process.

Research collaboratives

Self-defined groups of faculty across multiple disciplines should develop teams to target specific societal and or technological problems, or initiate a new research focus of national or global importance. Representation should be engaged from multiple colleges and each collaborative

should have well-defined problem statements, goals, and means to achieve stated goals on a five- to ten-year timeline. These programs should engage graduate and post-graduate trainees in interdisciplinary projects. Faculty should be self-assembling and empowered with resources for shared or adjacent space, faculty hiring in critical need areas of the team, and start-up funding for proposal development. A strategy for sustainable funding should be required. We suggest two means of funding collaboratives: 1) some funds for faculty lines could be held back at the provost level and assigned to collaboratives; and 2) some collaboratives initiated by faculty will naturally align within directions of interest to one or more college, so deans could be encouraged to participate and provide positions, space, and other support.

Research clusters

Faculty across departments and disciplines should organize in small groups to focus on collaborative research projects that would benefit from tighter linkage. Faculty should be self-assembling and empowered with shared space for trainees. A strategy for sustainable funding should be required.

Research partnerships

NC State should provide protected time or limited support for individuals to re-establish a previously active research and scholarship program or to re-tool into a new research area. This might take the form of a mentoring program to match individual faculty with funded peers, leave time to allow faculty to focus on a new research area, or travel support to establish collaborations at other institutions if appropriate local expertise is not available. The intended outcome is to provide an opportunity for faculty to reinvigorate or establish a research program.

Distinguished/visiting fellows

NC State should establish programs to support time-limited highly qualified post-doctoral or visiting faculty fellows to work with faculty in new or existing research programs. Some academic units do not have access to specific grant mechanisms due to the lack of a doctoral training program. A fellows program could enhance competitiveness of these faculty members.

High expectation of tenure-track faculty

When NC State has enhanced opportunities for enriching research and scholarship, faculty who are not successful or faculty who do not elect to participate should be reassigned to full-time academic teaching and advising positions. Modification in post-tenure review should be considered to include an expectation that each faculty member must continue to meet the level of research and scholarship upon which the last promotion was based.

Facilitation and support

Centralized core facilities

The research community has access to a wide range of shared equipment, but tool and service availability are not well known, and means to gain training and access to the tools are not well

defined. In addition, many facilities are duplicated across colleges, reducing financial ability to maintain cutting-edge technologies. NC State should take a cross-campus view of shared facilities and develop a plan to better coordinate and integrate them. The concept of the Materials Infrastructure Consortium, or similar proposals, should be considered, revised, and eventually adopted.

Research commons

NC State should provide spaces distributed across campus that are designated for exploration of new interdisciplinary research and scholarship prospects. The space would be shared, coordinated, and scheduled by a central office, and research collaboratives, research clusters, and faculty in newly emerging areas of interdisciplinary research interest can apply to use the space for a defined period of time (six months to two years). These research commons will provide continuity and space for faculty to meet to develop and consolidate their projects.

Allocation of F&A resources

The distribution of F&A should be re-evaluated to ensure that the financial model provides incentives to faculty to develop grant-funded research programs and adequate F&A allocation at the local level to support faculty teams in successfully managing, sustaining, and expanding their research programs.

Research efficiencies

NC State should investigate models for increasing efficiency of research support from pre-grant through post-grant.

Productivity metrics

NC State should develop field-specific metrics that are widely accepted by our peers and AAU members. These can be used to ensure continued faculty development and the success of faculty-driven research initiatives. Depending on the field, metrics might include:

- Faculty retention
- Percent of faculty involved/participating in research and scholarship
- Number of interdisciplinary grants (such as seed funding, segment accounts within the university, multi-institutional sub-awards, or public or private planning grants)
- Amount of federal research support
- Number and quality of peer-reviewed publications
- Positions obtained by students completing their doctorates and by postdoctoral fellows

Logistical challenges and specific ideas

- Funding of start-up packages for faculty engaged in expanding interdisciplinary research that consolidates current NC State areas of excellence
- Reducing institutional barriers (increasing efficiency and flexibility)
- Better mechanisms to empower and train future leaders

- Space allocation based on productivity, not occupancy, and not restricted to specific departments or colleges
- Buy out of positions or early retirement
- Post-tenure process option to transition from tenured research and teaching position to non-tenured teaching position
- Increasing involvement of extension faculty in the "scholarship" of extension beyond the act of extension
- Resources that follow productivity and activity. Increasing the numbers of producers and decreasing the numbers of consumers
- The establishment of avenues to improve communication between researchers and administrators. Examples include: 1) University Professor Board quarterly meetings with the chancellor; 2) faculty part-time assignments as administrative support to provost, vice chancellors, etc.