

## **Task Force 2: Research**

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### **Goals**

- Support laboratory and research operations such as physical space, technology infrastructure, core facilities, funding and employee well-being within new work environments and safety protocol.
- Actively support non-laboratory based research activities.
- Support researchers who were negatively impacted or may have stalled over the past year due to COVID, in terms of lost funding, adverse impact from work/life balance concerns, and other access restrictions to physical lab and research space.
- Continue to invest in research and research enterprise growth and take advantage of upsurges in COVID and other new funding opportunities (e.g., AI, data science, plant sciences, climate, health, different engineering domains, digital agriculture, quantum computing, etc.).
- Actively increase interactions with industry, and other diverse sponsors (e.g., DoD).

### **Background**

The Office of Research and Innovation (ORI) has been fully functional and operational in the virtual space, except for skeleton on-campus personnel, from March 20, 2020. Unfortunately, from March 20, 2020 to May 18, 2020, NC state research enterprise operated with drastically reduced on-campus activities (including centers and institutes, research stations, and field operations). Most of the research work was done virtually. Still, the NC State research enterprise, while not immune, seems to have been less damaged than some other NC State activities. Restarting the facility-based (e.g., laboratories, field work, etc.) research enterprise as much as possible and as soon as possible, and making further investments into it to take advantage of an upsurge in COVID-19 related funding and put it back onto its very successful pre-pandemic track, was imperative. By the fall of 2020, the lab-based part of the NC State research enterprise was almost fully back to normal (with some personnel density restrictions, mandatory PPE and cleaning, non-facility based research still being done from home, although on request any researcher can work from their university office, etc.). By December 2020, more than 5,000 in-lab/field personnel slots were approved (faculty, staff, students) in different laboratories and field locations, of which only about half could be on campus at any time to comply with the density restrictions. Results were excellent, in terms of the operational effectiveness of the NC State research enterprise and its overall productivity. However, some issues need further attention.

Between December 17, 2020 and January 11, 2021, University Research Council (URC), in collaboration with the university, posted a survey that in part focused on the impact of the pandemic on faculty and their research activities. Response rate was about 29%. Distribution of responding faculty appears to have been representative across colleges. In the research context, and depending on the question, the number of respondents was between 300+ and 600+. Results of the survey are now available. To a large extent, these results reflect “pre-vaccine” views and concerns of the university faculty. However, some of the concerns are still valid even with the vaccine being available, and have both tactical (short term) and strategic (long term) implications. Results are briefly summarized below, and can serve as one of the platforms from which planning can be done in terms of lessons learned from the pandemic.

In 2020, as many as 85% of surveyed faculty did at one point do most or all (research) work off campus, and about 75% of faculty indicated a reduced ability to succeed in research, teaching and extension; 87% of faculty reported spending “somewhat more time” to “a great deal more time” on their teaching; about 80% of faculty felt “somewhat more than usual” to “much more than usual” anxiety, stress, being overwhelmed, worried about family health, worried about their health, and struggling with work-life balance. Assistant professors appear to have been affected most, then Associate and then Full professors. Women reported a higher degree of challenges than men. While the faculty productivity measured through the proposals sent out in FY20 and FY21 was/is ahead of the non-pandemic period, surveyed faculty reported, for example, a slowdown in manuscript completions and concerns about being competitive. In general, some of the key obstacles to doing research was lack of time because of other demands (e.g., teaching, childcare, access to research assistants, etc.). Inability to travel (and get in-person feedback at, for example, conferences) is still an issue for some of the faculty.

### **Key Concepts**

Some of the potential short term remedies recommended by the faculty include seed funding aimed at those whose research may have stalled, funding for students who now may be on the edge of not being funded, and in many instances ongoing concern about childcare. One of the long term lessons is that we definitely do need to keep NC State laboratories and research related spaces adequate, open and secure at all times in order to enable at least 50% of the researchers to work. Another one is that work from home, while feasible, may be (is), for a large fraction of the researchers, more stressful and distracting (and possibly less productive) than working in the office, so research office spaces should be preserved. Investment into existing and new research initiatives to grow NC State’s research reputation and visibility is essential.