

A&S Strategic Research Planning Initiative - Town Hall for Sciences (Feb 27, 2024)

Facilitated by: Laura Galloway and Cheryl Wagner

Introduction + Slideshow Presentation by Laura Galloway

- I. Overview of Strategic Research Planning initiative:
 - a. “The initiative will assess our strengths, benchmark our performance, and articulate a vision for what research excellence looks like in A&S, and will recommend specific actions to achieve it and measure progress over the next 5-7 years.” “Expand the impact and size of our research footprint.”
- II. Introduction of the steering committee, divisional representatives, and research cores. Stated focus of the Strategic Research Planning Initiative
 - a. Identify focal areas of strategic investment
 - b. Identify constraints: changes in practice and resources to enable success in research, scholarship and creative practices
 - c. \$25 million set aside in upcoming budget to support outcome of this initiative
- III. The process is faculty driven – ideas collected from faculty across divisions, then shaped by steering committee to form a plan to present to the dean. Process to date:
- IV. Faculty focus groups to gather thoughts on constraints and on areas of research strength (one per division)
- V. Survey to
 - i. a) determine areas of strength and opportunity
 - ii. b) assess constraints
- VI. Town halls to discuss survey responses in areas of opportunity
- VII. Survey Results:
 - a. 619 A&S faculty invited to take survey – anyone with research in their job description
 - b. 51.2% overall response rate
 - c. 59.7% response from Sciences
 - d. Shown to be representative across ranks
- VIII. Sciences faculty ranked the biggest constraints to their research in 4 categories. These findings will be used by the Dean to identify where to invest this spring.**
 - a. Resources: Graduate students/ Postdocs**
 - b. Infrastructure: Pre-award staff support**
 - c. Collaboration/Communication: Cohort, mentorship, or residency**

d. Equipment/Training: Shared equipment; increased technical staff

- IX. Focal Areas for Strategic Investment: open-ended questions grouped by 4 themes that emerged in the survey analysis. These themes emerged from the Sciences faculty. The goal of the town hall is to build out these ideas – do these themes resonate? Are they exciting?
- a. *Astronomy/Astrochemistry/Astrophysics/Astrobiology*
 - b. *Neuroscience in changing environments/ across disciplines*
 - c. *Quantum Physics and Computational Biology*
 - d. *Data Science & Sciences interactions; AI & Biology*
- X. Some areas that are already being invested in will not be included in discussion today

Open Comment Period Facilitated by Cheryl Wagner:

I. Astronomy/Astrochemistry/Astrophysics/Astrobiology

- a. Astronomy is excited about the theme of the Interconnected Universe. Astronomy has a lot of separate fields, and it would be great to bring the existing faculty together and expand as well. Faulty pointed to the ideas of shared humanity and belonging which can cut across lots of divisions like ASTR, ANTH, HIST, ARTD.
- b. ASTR studies how elements are formed, how planets and exoplanets are formed – bringing these themes together with arts & humanities, philosophy etc. Public and NSF funding is available for this type of research.
- c. Looking at where is the big growth in technology 10-20 years in the future; James Webb Space Telescope imaging of exoplanets pulls in EVSC, ex. Computational power is also growing
- d. Ties to large survey telescopes, computing centers, etc., many universities buy pieces of this technology – UVA has not yet. If we want to maintain excellence, we need to keep pace; these are run as consortia and we need to be in on the ground floor.
- e. Origins of Everything as a theme of excellence where UVA could set itself apart.
- f. The National Center for Radio Astronomy is also literally on grounds and would be great to capitalize on.
- g. Most of these things you can bring in humanities; however, nebulous suggestions here that are so broad as to be meaningless. Almost anyone can fit into some ideas (Like “origins”); We could build out reasons to get humanities involved at any level, but WHY. (It doesn’t feel genuine)

II. Neuroscience in changing environments/across disciplines

- a. Neuroscience; excited to examine how nervous system development and organization is moderated by environment; consideration of non-traditional models/systems; different measurement types which are more valid; more environments where this hasn't been measured before or collaborating with other fields like Education or developmental sciences.

III. Quantum Physics and Computational Biology

- a. Center for Quantum Physics – lots of potential for materials, computing, etc. People here are doing things that are attracting attention and could continue excellence.
- b. Quantum Materials: the word Research is used in many different ways; how is one going to decide how one field is more important than others for investment (U of MD has quantum lab; why not us?).
- c. Decades long time scales; in the sciences, we measure stuff and need to be able to do science. In the case of Quantum institute, it sounds nebulous; can we look at/measure things today? Elements of quantum sensing in lots of areas (ASTR, Medical, etc.). Common facilities are great to build out different research and could have immediate impact.

IV. Data Science & Sciences interactions; AI & Biology

- a. To become a top research school for all the upcoming topics – we need to develop strong AI tools and support to stay at the cutting edge of fields. Developing resources at UVa will be essential for UVa to become a leader in this field. Expertise to develop AI tools tailored for specific fields from genetics to climate change, etc.
- b. There are a lot of task forces looking at AI: the older generation will need resources/support and we're already building this out.
- c. We need specialist AI, not off the shelf AI and with deep knowledge of specialists
- d. Data Science, AI and Machine Learning: this is the revolution that is coming to science and will be broadly impactful.

V. Additional Comments

- a. Jefferson lab
 - i. Thinking about things in the context of Virginia – High performance data facility being built in Newport News – Governor has invested \$50 million in that infrastructure. How can UVA utilize those resources?
 - ii. Jefferson Lab is here; electron ion collider is going to be built in Long Island with a huge partnership with Jeff Lab and Brookhaven; future of nuclear and particle physics; tap into the HPDF (high performance data facility)

- b. Reframing form and function; Neuro but also phenotype (ex. Responding to changes in environment) UVA already has strengths for core research starting here, that can also pull in policy and ethics, and Law school; thinking about how to implement policy for the organisms we're studying.
- c. Concerns voiced about directions for research in math as a pure field (ex: WVU). Have we considered an equity issue for smaller departments? A: Math showed up in some of the responses; the committee is looking for something larger than just departments; tap into initiatives that are cross fields.
- d. UVA has 3 Field stations across Virginia – all over the state – NEON monitoring (comparative across the country) - ground for changing environment piece that can be leveraged. No one else has two in different domains. We can plug these into PSYC; ENVIR; BIOL.

VI. Procedural comments

- a. Q: Why didn't the committee stick with the original survey results that showed groupings among departments? A: UVA is already investing in departments; this is an additional initiative.
- b. Comp Sci/AI infrastructure; may want to implement flexibility in all things; want grad students to cross train but BIOL grad student can't take undergrad class in Comp Sci/ECON - good point, but not the topic for today.
- c. Q: Are we talking about allocating subfields. \$25Mil – how are they going to split this up? A: At the end of the day, that's the dean's decision; we are providing suggestions.
- d. If faculty were polled to weight the responses, there might be some things falling out that are clear.
- e. Q: will there be a call for proposals for specific projects? A: The survey was designed to find low-hanging fruit opportunities. Maybe it will lead to a call for proposals, but we don't know that yet.
- f. It's hard to know as an outsider what the pockets of strength are; what do you have that no one else has?
- g. Q: Are resources being towards what we are already good at or towards where are we flagging to bolster them? A: Both; where if we invest a little, could we really be a real presence in that area?