VirginiaTech
College of Science

Office of the Dean (0405)
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August 24, 2015

To whom it may concern:

Neuroscience is becoming one of the fastest growing arenas of study. It is having an impact beyond the traditional domains of biological science, and biomedical research. It is a field that is appealing to a large number of students, faculty and researchers, precisely because it reaches across multiple disciplines.

Virginia Tech is well positioned to be a key player in this field. Building upon strengths in basic science and engineering, and in social science and humanities, the neuroscience program here will offer unique venue for education, research and outreach important to many parts of society. As such, this enterprise cannot be contained in one traditional department. To fully engage the intellectual power within the University requires the establishment of a unit that is built from the beginning to cut across organizational boundaries. Hence the proposed School of Neuroscience, which will be located within the College of Science as its launch point.

The College has been planning for this outcome for the last four years, both in terms of recruitment of students and faculty, and also in terms of budgetary constraints. In the past year, through a combination of existing College resources, and substantial help from the University, all of the requisite pieces came together. We now have a Director, Dr. Harald Sontheimer, the inaugural I.D. Wilson Professor, an entering class of close to two hundred students, and a plan to recruit faculty members with a broad collective expertise. Required resources to support the effort have been identified, and through careful planning, I don't expect the School to compromise fiscally any of the existing programs.

Sincerely,

L. N. Chang

Lay Nam Chang
Dean
College of Science

Virginia Polytechnic Institute and State University
Simple Organizational Change
Formation of the School of Neuroscience

Name of Proposed Change
Virginia Tech proposes to form a new School of Neuroscience, to be housed within the College of Science.

Proposed Effective Date:
Fall 2016

Background
Neuroscience has quickly emerged as one of the "hottest" disciplines in the life sciences. In response to this demand, over the past six years, Virginia Tech has been keenly focused on expanding its ability to educate and train students in the field of neuroscience. One such innovation was Virginia Tech's formation of the Virginia Tech Carilion Research Institute (VTCRI) in Roanoke. A second innovation was the formation of the Academy of Integrated Science within the College of Science into which several cutting-edge, cross-disciplinary degree programs have been placed. The Academy of Integrated Science, which Dean Lay Nam Chang established in 2011, now encompasses undergraduate degree programs in computational modeling and data analytics, nanoscience, systems biology, and neuroscience. It is also the home to the Integrated Science Curriculum and the Division of Science, Technology, and Law. The last of these – the B.S. Neuroscience degree - is one of the emerging new undergraduate majors that many students are seeking at Virginia Tech. Neuroscience has a far reach into essentially any aspect of human endeavor. It is a discipline that teaches us how we perceive the world, how we make decisions, develop emotions and show empathy. It is a science that uses a fact-based approach to examine and evaluate interactions between individuals and between genes and the environment that shapes our mind, behavior and susceptibility to disease. As such, neuroscience is not just the application of Biology to the brain, but instead a science that informs - and is informed by - essentially every aspect of human endeavor.

Proposed Mission
Rationale and Purpose
The oversight and administration required to bring neuroscience to the forefront of Virginia Tech's scholarly landscape is above the level of the typical academic department. The School of Neuroscience will lay the foundation for the interdisciplinary and translational understanding of the workings of the human neurological system, from the cellular level, to an appreciation of all that is essential to the human mind and behavior. As such, this training in neuroscience involves not only trained scholars and researchers in the field, but scholars in essentially every department in the extant College of Science (i.e., Biological Systems, Psychology, Mathematics, Physics, Chemistry, Statistics and Economics), and many other colleges (Engineering, Agriculture and Life Sciences, Liberal Arts and Human Studies, Veterinary Medicine). The Virginia Tech School of Neuroscience (within the College of Science) will provide support and visibility to the innovations in neuroscience mentioned above, including Virginia Tech's new B.S. Neuroscience degree program. The establishment of the School will facilitate the recruitment of faculty members who traditionally have sought employment at medical schools that have multiple neuroscience foci such as Neurology, Neurosurgery, Anesthesiology, and Neurobiology etc. Importantly, the School of Neuroscience at Virginia Tech will be able to recruit a significant number of additional students, both within our Commonwealth as well as across the nation, who would otherwise choose to attend other colleges and universities. Thus, we envision the School of Neuroscience as a way of promoting Virginia Tech as a leader in the undergraduate and graduate education of this important field.

Relationship to Institutional Mission

The proposed School of Neuroscience fits well with the overall mission of Virginia Tech, which is to serve the Commonwealth, the nation, and world community through the discovery and dissemination of new knowledge. Paramount to this mission is teaching a superior caliber of both undergraduates and graduates in this new and cutting edge knowledge in order to expand personal growth and opportunity, advance social and community development, foster economic competitiveness, and improve quality of life.

The proposed School of Neuroscience also supports the mission of the College of Science at Virginia Tech with continued emphasis on giving students a comprehensive foundation in the scientific method coupled with training from a translational perspective so that tomorrow's graduates can implement their knowledge in ways that contribute to the public good. The College of Science is dedicated to fostering a research- intensive environment that promotes scientific inquiry and outreach.

Curricular/Degree Programs

The proposed School of Neuroscience will immediately administer the B.S. Neuroscience degree, which started in fall 2015. Over the next several years, Virginia Tech plans to develop an additional B.A. Neuroscience degree (tailored to pre-professional students seeking careers in Business, Finance, Law, or Public Policy) and a Minor in Neuroscience. The current and future degree programs will be built on collaborative work and education of students in the classroom, and on student interactions with researchers and practitioners, providing an unparalleled breadth of neuroscience education at the undergraduate level. Through the curriculum and research training, students learn the theories and methods that link behaviors observed in everyday life with new discoveries in neuroscience, obtained by advanced technologies. Graduates of this program will be proficient in understanding genetic, molecular, structural, physiological, cognitive, and behavioral aspects of the central and peripheral nervous systems in humans and in nonhuman animals. In addition, they learn the application of neuroscience to engineering, to art, to architecture and to decision-making. This portfolio of skills ensures that program graduates are highly competitive for the biomedical research employment market in industry and in government, and for graduate degree programs in neuroscience and across related life sciences.

The expanded curriculum will include innovative courses in neuro-law, neuro-analytics, neuroscience of decision making, neuro-economics, neuro-sociology, neuro-ethics, neuro-robotics, neuro-arts, neuro-architecture, and many others, which will give future professional with an interest in business, finance, management, law and policy a distinct advantage, and will differentiate a Virginia Tech Neuroscience major from any other in the country.

Proposed Organizational Structure

Proposed Faculty. Faculty in the new School of Neuroscience comprise those with academic appointments directly in the School and those who hold joint appointments in other academic units. Existing faculty with expertise and an interest in Neuroscience will be invited to join the School of Neuroscience as founding faculty members. In addition, VT expects to recruit five new faculty members in the next academic year (2015/2016), with the majority being recruited at the tenure track Assistant Professor level. However, well-qualified midcareer applicants will also be considered. The long-term goal is to recruit an additional ten faculty members. All these new faculty will hold their tenure in the School of Neuroscience. Since Neuroscience is a laboratory-intensive course, we will utilize 2 instructors (one existing) to run multiple concurrent sessions of the introductory and advanced laboratories.

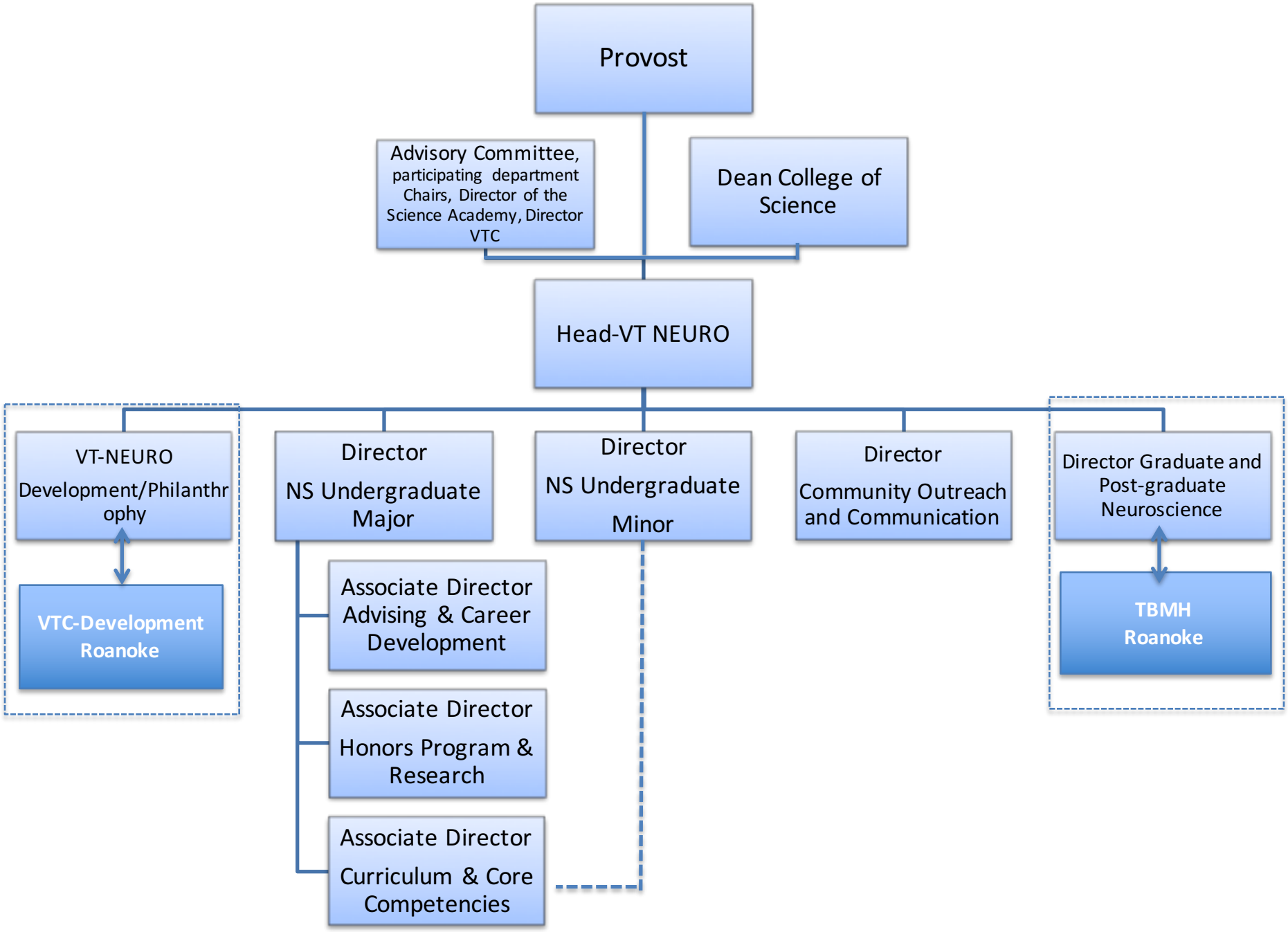
Proposed Administration. Dr. Harald Sontheimer, a recently appointed professor of Neuroscience and I. O. Wilson Chair in the College of Science, will direct the School of Neuroscience. Dr. Sontheimer is an expert on the biology of glial cells in cortical functioning, and occupies a joint faculty

appointment with the Virginia Tech Carilion Research Institute. He previously directed a Center for developmental disabilities research overseeing the activity of 92 faculty members with a $38.4M annual budget. Dr. Sontheimer will be responsible for the daily function of the School of Neuroscience, including the managerial oversight, hiring of all faculty and staff, development of an innovative curriculum, seeking out extramural funding opportunities, soliciting philanthropic support, and promoting the School's visibility through community outreach and national advertisements. Dr. Sontheimer is joined by Ms. Anne Wailes (Operations/Business manager), Ms. Naya Sou (Assistant Director for Academic Advising) and Dr. Vicky Tu, instructor in Neuroscience. One additional instructor position will be filled for the upcoming term.

Proposed Operating Budget. All administrative and faculty positions will be funded centrally by the School of Neuroscience, in direct conjunction with the College of Science and with the support of the president's office. Ms. Anne Wailes will function as the School of Neuroscience financial/budget manager. Annual expenditures include allocations for seminars and outreach activities as well as several one-time expenditures that are associated with the creation of a new school (e.g., signage, business cards, office/computer supplies, postage, photocopying, telephone, travel, faculty searches, faculty start-ups, etc). Virginia Tech will not request any new state resources to establish the School of Neuroscience.

Administrative Space. At present, there is adequate space (existing and planned) to accommodate the new School of Neuroscience. The School of Neuroscience will be located in the renovated Sandy Hall on the Blacksburg campus, scheduled to be completed in 2017. This facility will provide main administrative offices for the director and related staff (including advising space), as well as offices for student advisors, instructional faculty and post-doctoral fellows. This space will also contain gathering and study spaces for neuroscience majors and minors including a Neuroscience Café that will serve as a meeting hub for the students. It is important to stress that the distributed nature of this discipline, which involves many departments across the colleges, requires a centrally located hub that the students are naturally drawn to for advising and collegial learning. The renovation plans are in the advanced stages of programming and with funding in place, construction will begin in December 2015. Until the completion of this space, the School of Neuroscience's administrative space is housed in Suite 4500 on the North End Center in the College of Science.

Research and Laboratory Space: For the immediate five faculty recruits, laboratory and office space has been secured in Virginia Tech's existing Virginia Bioinformatics Institute and the Integrated Life Sciences Building. Programmatic joint hires, such as the recruitment of a neurochemist, may be placed in existing departmental space, upon mutual agreement with the relevant unit.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August 24, 2015

To the Review Committee:

We write to express our support for the proposed "School of Neuroscience", which, upon approval, will be housed in the College of Science. It is for this reason that we support housing Neuroscience in a School as opposed to a Department. We further believe that by establishing the School of Neuroscience, Virginia Tech has the opportunity to recruit outstanding additional faculty members and most importantly to attract a significant number of students seeking to obtain a degree in Neuroscience who would otherwise choose to join one of our competitors.

Sincerely,

Brenda Winkel
Head
Department of Biological Sciences

Peter Haskell
Chair
Department of Mathematics

James M. Tanko
Chair
Department of Chemistry

Patrick Huber
Chair
Department of Physics

Sudipta Sarangi
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