Rationale

From the standpoint of biomedical research, the 21st

The principle U.S effort is the BRAIN Initiative (Brain Research through Advancing Innovative Nanotechnologies http://www.braininitiative.org), which is funded by private-public partnerships at the level of about \$100 million annually. This effort is complemented by international projects, including The Human Brain Project (https://www.humanbrainproject.eu), a \$1.6 billion project funded by the European Union. This enormous investment reflects the fact that science is now poised to make significant progress in understanding the complexity of the nervous system.

Neuroscience is the ultimate multidisciplinary field: neuroscientists engage in research that spans cell biology, genetics, physiology, chemistry, engineering, computing, mathematics, medicine, and psychology. A local example of this multidisciplinary characteristic is the Program in Neurosciences at the University of Utah (https://neuroscience.med.utah.edu), which draws on 73 faculty from 15 departments. While many of the departments are associated with the medical school, traditional academic departments are represented as well, namely, Biology, Chemistry, Mathematics, and Psychology. An affiliated program at the U of U is the Scientific Computing and Imaging Institute (SCII https://www.sci.utah.edu), which provides computing and imaging support for neurosciences research and draws heavily on faculty in Computer Sciences.

The prospective hire would allow us to sustain and enhance our capabilities at many levels. The Department of Zoology has a diverse faculty with active scholarship in the areas of ecology, evolution, anatomy, physiology, genetics, and cell biology. There is some overlap in the research interests of Zoology faculty and the other two life sciences departments, as well as the Department of Chemistry, but there is not a single faculty member in the COS with experience and training in neurosciences. Moreover, the college does not offer a single class in this important discipline. The situation beyond the COS is almost as stark, in that the courses offered by the Neuroscience Program at W.S.U. are limited and are often taught by individuals without a background in modern experimental neurosciences.

Although not a peer institution, the programs at U of U illustrate three points relevant to neuroscience at Weber State: (i) This is indeed a field with an unlimited future. Students with experience in neuroscience are employed in large number of academic and private research laboratories across the country. (ii) The multidisciplinary nature of neuroscience means that it could be an organizing force in increasing faculty collaborations, both within the college and with other colleges on campus. (iii) The Neuroscience Program at W.S.U.

(http://www.weber.edu/neuroscience), which was established in 2009 with input from COS faculty, has experienced sustained growth, especially in the number of students choosing this field as a Minor:

2009 2010	8	1
2010 2011	20	3
2011 2012	13	10
2012 2013	18	9
2013 2014	23	11
2014 2015	23	12
2015 2016	32	25

To date, 138 W.S.U. students representing 12 majors in five colleges have declared Neuroscience as a Minor. Zoology students represent the second most-frequent Major, trailing only Psychology. This indicates that Zoology students have a keen interest in this rapidly-growing field. Beyond Zoology majors, a neuroscientist could have a salutary effect on the -medical program. Of the 138 Neuroscience Minors, 19 were/are premedical students. The development of new neurosciences courses would clearly enhance the existing curriculum and neurosciences research would provide opportunities for students interested in medicine or biomedical research, areas that are a strong suit of the department and college.

Given the interest in this field on campus, we believe that a cell and molecular biologist with training in the neurosciences could further strengthen the pre-professional programs within the College of Science (e.g., pre-med, pre-PA), while providing broader opportunities for all lifescience majors. For students interested in careers in research, regardless of major, we expect undergraduate training in neuroscience to be beneficial for applications to graduate school.

The facilities in the new Tracy Hall Science Center will ensure that we are able to attract a large number of qualified candidates for this position. Neurosciences research has transitioned away from relying on elaborate and expensive equipment (e.g., MRI machines) to the cellular and molecular levels and to computing. Establishing a successful research program at an undergraduate institution is much more feasible with that latter approaches. The extensive animal facility in the THSC, which is exceptional for an undergraduate institution, will be an additional selling point for a new faculty member. The ability to influence the curriculum by developing new courses, and to contribute to the Neuroscience Program at its incipient stage, may also appeal to many candidates. Finally the dat itsea12.29 147a12.pe