Approved by the Board of Trustees

November 17, 2022

9

Board Meeting

November 17, 2022

# ESTABLISH THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE + BIOENGINEERING, THE GRAINGER COLLEGE OF ENGINEERING, URBANA

**Action:** Establish the Bachelor of Science in Computer Science + Bioengineering,

The Grainger College of Engineering

**Funding:** Tuition revenue from the program is expected to cover any funding needed

that may result from a need to increase sections of required courses. All but one of the required courses already exist. Any additional sections of existing courses and the new senior design course will be covered by existing faculty. No new faculty hires, technical resources, or facilities are needed.

The Chancellor, University of Illinois Urbana-Champaign, and Vice President, University of Illinois with the advice of the Urbana-Champaign Senate recommends approval of a proposal from The Grainger College of Engineering to establish the Bachelor of Science in Computer Science + Bioengineering (B.S. in CS + BioE).

Computational technologies growth in and impact on healthcare and life science fields have been immense, leading to high demand for professionals who understand the languages, tools, and techniques of both biology and computational science. At the University of Illinois Urbana-Champaign (UIUC), the existing B.S. in Bioengineering and B.S. in Computer Science do not adequately address the need for interdisciplinary training at the intersection between these fields. Across the nation, aside from rare undergraduate programs in bioinformatics and computational biology, the disciplines are likewise largely disjointed. The proposed B.S. in CS + BioE addresses the growing need for bioengineers to have rigorous computational skill training, preparing them to lead the next generations of computational advances, maximizing their career potential. It also addresses student interest at the intersection between two of the most popular UIUC majors.

The proposed program will provide training in biomedical computation involving purposeful integration of foundational bioengineering and computer science principles. The curriculum incorporates a solid foundation in scientific computing practices as well as training in the application of computation to solve problems in medicine and the life sciences. The B.S. in CS + BioE will create a new generation of professionals with complementary cross-disciplinary skills who will be in high demand in industry and research institutions. Graduates of the program will be prepared for career opportunities in fields including medical imaging, genomics, medical devices, healthcare informatics and software, and drug discovery. Students who complete the B.S. in CS + BioE will also be prepared to immediately pursue graduate studies in bioengineering, computer science, and related fields.

The program’s tuition revenue is expected to cover the needs for additional class sections in required courses. There is only one new course required for the major, a senior design course, which will be taught by existing Bioengineering faculty. Up to nine new faculty will be hired as part of the Department of Bioengineering’s faculty recruitment commitment. As this program progresses, these hires will provide any additional instruction needs to support the program. Current staff in the departments of Bioengineering and Computer Science will provide advising for the program. Job placement will be facilitated by career fairs organized by The Grainger College of Engineering and Engineering Career Services, as well as more specialized career events in the Department of Computer Science. Current facilities and library resources are sufficient to address the program’s needs.

The Board action recommended in this item complies in all material respects with applicable State and federal laws, University of Illinois *Statutes*, *The General Rules Concerning University Organization and Procedure*, and Board of Trustees policies and directives.

The Interim Executive Vice President and Vice President for Academic Affairs concurs with this recommendation. The University Senates Conference has indicated that no further Senate jurisdiction is involved.

The President of the University of Illinois System recommends approval. This action is subject to further review by the Illinois Board of Higher Education.