Approved by the Board of Trustees

July 22, 2021

19

Board Meeting

July 22, 2021

ESTABLISH THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE + EDUCATION, COLLEGE OF EDUCATION, URBANA

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

College of Education

**Funding:** Funding for hiring of two new faculty with expertise in computer science

teacher education will be provided by the College of Education and Department of Computer Science. The program will be financed through tuition differentials that Grainger College of Engineering students incur, which will be split between the College of Education and Department of Computer Science. Both Education and CS will use funds from the differential tuition to accommodate any increase in advising or teaching loads.

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

The B.S. in CS + Ed will allow undergraduate students to develop computational skills that can be used to either create more effective and equitable educational environments or provide more equitable access to computer science education. A companion report item seeks establishment of a concentration in Learning Studies within this program. There is increasing demand for computer scientists who understand the unique challenges of creating hardware and software for a range of learning contexts from classrooms to museums, including taking what we already know about how to teach effectively and expanding the reach of those strategies with networked technologies and online learning platforms. Additionally, there is increased recognition of the importance of computational thinking and computer science education in K-12. Skills gained from studying computation and computer science are invaluable, and computing occupations are one of the most important sources of new wages in the United States. Training teachers who are well-qualified to teach computer science will contribute to reducing inequalities by increasing access to computer science courses and related jobs.

The proposed cross-disciplinary curriculum will be one of the first of its kind combining these fields at the undergraduate level. Graduates will be in demand in the job market since they will have solid theoretical and critical understanding of educational developments and socio-cultural influences on learning along with the ability to create new software, analyze complex data, and develop algorithms that make the use of such data innovative. Graduates who pursue teacher licensure will be well-positioned to equip the future Illinois workforce with increasingly in-demand computational thinking and computer science skills.

Based on enrollment projections, the Computer Science and Education courses required for the B.S. in CS + Ed have capacity or can be expanded through the use of differential tuition. If demand exceeds these projections, the College of Education and Department of Computer Science will reevaluate the admission and advising process, and the additional tuition revenue will support additional course sections and advisors as needed. New sections of the teaching methods courses will be staffed through the hiring of faculty with expertise in computer science teacher education, with these hires funded by existing revenue streams in the College of Education and Department of Computer Science. No new or additional facilities, significant improvements to existing facilities, or additional resources from the University Library are needed.

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