Contact: Rachel Boon

REQUEST FOR NEW PROGRAM AT IOWA STATE UNIVERSITY: BACHELOR OF ARTS IN COMPUTER SCIENCE

Action Requested: Consider approval of the request by Iowa State University for a Bachelor of Arts in Computer Science in the College of Liberal Arts and Sciences.

The Council of Provosts and the Board office support approval of this program.

Description of proposed program. ISU proposes to establish a Bachelor of Arts (BA) in Computer Science degree, to be offered in addition to the existing Bachelor of Science (BS) in Computer Science. The proposed BA requires fewer total computer science courses than the BS program (32 credits versus 50 credits), and it allows students more choice of which advanced courses to take. However, in all other respects, the BA program is as rigorous as the BS program. Put succinctly, the BA program retains the depth of the BS program while allowing students to spread the breadth of their education over other disciplines in addition to computer science.

Academic objectives. The purpose of the BA in computer science is to accommodate students who wish to pursue a major in computer science while taking more courses outside of the major than a BS program permits. This will include students pursuing double majors, students pursuing one or more minors, and students seeking additional general education courses.

Relationship to existing programs at the institution. The BA in computer science will have a close relationship to the existing BS. Students will be in the same course sections and be subject to the same prerequisites and grade requirements. The BA program is likely to attract a more diverse student body than the focused BS program as it increases the number of computer science majors who add majors or minors in other fields to their programs of study.

In consultation with the Department of Psychology, a sample four-year BA program for a computer science-psychology double major was developed. Similarly, in consultation with the Department of World Languages and Cultures, a sample four-year program for a double major in computer science and languages and cultures for professionals was developed. Additional such plans are anticipated with other programs.

Relationship to existing programs at other colleges and universities. The University of Iowa (UI) and the University of Northern Iowa (UNI) both have BA and BS computer science programs. Most private colleges in Iowa also have BA in computer science programs, some also with a BS option. The ISU program has more research opportunities than many smaller colleges.

Among ISU's peer land grant institutions, the University of Wisconsin, the University of Minnesota, Ohio State University and Texas A&M University all offer both BS and BA computer science degrees.

Resources to establish a high-quality program. ISU has a long history in computer science, dating back to Atanasoff's invention of the first electronic computer in 1939. The Department of Computer Science was established in 1969. The faculty collaborate with faculty across many fields at ISU, both in research and student supervision. Students in the BA will be comfortable combining their computer science studies with their broader education in exciting double major opportunities.

Student demand. Consultation with peer institutions indicates strong student demand for BA computer science programs when a BS is also available. For example, UI currently has 265 students in the computer science BA and 205 students in the BS. At the University of Colorado the BA program started in 2012. At that time there were no students in the BA and 347 in the BS. Two years later Colorado had 468 BA students and 430 BS students, and by 2021 they had 813 BA students and 921 BS in computer science students.

The department anticipates that having the BA in computer science will attract some students in ISU but will draw many students to add it as a second major suggesting that enrollment numbers may grow at a similar pace to what has been observed at other universities.

Workforce need/demand. There is an increasing demand for computing professionals both in the U.S. and internationally. The U.S. Bureau of Labor Statistics (BLS) projects that the job outlook for 2020-2030 for software developers, quality assurance analysts and testers will grow 22%. In Iowa, U.S. BLS projects 5,652 jobs in computer occupations in 2030. Although U.S. universities graduate about 65,000 computer science students annually, there continues to be unmet labor market demand.

Funding and Cost. Current facilities and equipment are adequate to establish and maintain a high-quality program. All courses in the proposed BA already exist as part of the BS in computer science. The primary need will be to hire additional faculty to teach if enrollment in these courses grows as expected. The College of Liberal Arts and Sciences will manage these resource needs.

Projected student enrollment. Student demand for a BA in computer science is high and does not appear to lessen demand for the BS. However, even a conservative approach to forecasting suggests positive growth of the BA in computer science.

	Y1	Y2	Y3	Y4	Y5
Undergraduate	15	30	50	75	95

Accreditation. The program does not require additional approval from HLC and there is no program-level accreditation body for computer science.

Date of implementation. January 2023.

Letter of Support

June 9, 2022

To the Board of Regents:

The Council of Provosts discussed the Iowa State University proposal for a Bachelor of Arts in Computer Science and reviewed associated documentation. There is sufficient evidence for the need and value for this program. The plan indicates due diligence and the Council of Provosts appreciates the collaboration between the deans and departments involved. Based on the evidence and documentation, this program is likely to benefit the state of Iowa.

The Council of Provosts is supportive of the program and wishes Iowa State University the best in its implementation.

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6/10/2022

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