



**SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS**

**Institutional (Comprehensive) Program
Review Report to the Board of Regents**

Use this form to submit a program review report to the system Chief Academic Officer. Complete this form for all units/programs undergoing an accreditation review, nationally recognized review process, or institutional program review. The report is due 30 days following receipt of the external and internal review reports.

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|------------------------------|--|
| UNIVERSITY: | DSU |
| DEPARTMENT OR SCHOOL: | The Beacom College of Computer and Cyber Sciences |
| PROGRAM REVIEWED: | BS Computer Science |
| DATE OF REVIEW: | 4/25/2024 |
| TYPE OF REVIEW: | Institutional Program Review |

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this report, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

DocuSigned by:

Jose Marie Griffiths

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President of the University

06/28/2024
Click here to enter a date.

Date

1. Identify the program reviewers and any external accrediting body:

The program reviewer was Dr. Sherri Weitzl-Harms, an Associate Professor of Computer Science at Creighton University.

2. Items A & B should address the following issues: mission centrality, program quality, cost, program productivity, plans for the future, and assessment of progress.

2(A). Describe the strengths and weaknesses identified by the reviewers.

Strengths:

The reviewer found that the strengths identified in 2016 were still strengths in 2024: *the option for students to complete the BSCS degree on campus or online, with blended classes that allow all students to interact; connections to industry with jobs, guest presentations, and career fairs; deep and meaningful relationships between students and faculty; outreach to K-12 students; and the strong international reputation of DSU programs in The Beacom College.* Additional strengths identified include: BSCS curricula alignment with national standards; strong numbers of students at all levels with an outstanding 100% placement record; strong level of student retention that outpaces the national average; the new Beacom Institute of Technology building; the 4+1 option for students to move quickly from the BSCS program to the MSCS program; the depth and breadth of the current faculty body; program resources; the increased level of

research and external grant funding (\$3.2 M in FY22); the programs' agility to see and respond to needs in a timely manner; and the collaboration and support at the local, state, national and international level.

The reviewer also appreciates the recognition of the programs' agile responses to trends in the discipline. The proactive actions identified include a new Center for Quantum Information Science and Technology (C-QIST); the CybHER® program to empower, motivate, educate, and change the perception of girls and women in cybersecurity; as well as curricular changes in the BSCS program including Artificial Intelligence/Machine Learning and Software Engineering specializations. These actions show additional strengths of the programs - their ability to adapt and stay on the leading edge, and its strong support from university and legislative leadership in the state.

Weaknesses:

A minor concern noted by the reviewer is the level of technical support staffing to support all of the academic programs offered in The Beacom College. There is currently one individual who manages all the technology setup for coursework.

2(B). Briefly summarize the review recommendations

The reviewer provided recommendations to build on strengths and address weaknesses in the BSCS program. First, it was recommended to incorporate industry tools into appropriate courses. Two tools mentioned by students were GitHub and Debugger. It was also suggested to require more team projects to better prepare students for the workforce.

To address only having a single staff member for technical support, the reviewer recommends hiring additional part-time staff to provide redundancy, be there in case of emergency, and promote continuity.

The program should continue aligning with industry needs and national standards. By maintaining its strengths in curriculum flexibility, specializations, and industry connections, the BSCS program can remain competitive and effective in preparing students for their careers.

2(C). Indicate the present and continuous actions to be taken by the college or department to address the issues raised by the review. What outcomes are anticipated as a result of these actions?

Through Beacom College faculty meetings, Beacom Assessment Committee meetings, Advisory Board meetings, and department meetings, the BSCS program will explore how to incorporate more team projects and recent tools used in industry in appropriate courses. These actions will address the weakness of the program to keep its highly regarded reputation, outstanding placement rates, and relevance intact.

- 3. Starting in Fall 2019 reporting year, campuses will identify the undergraduate cross-curricular skill requirements as part of programmatic student learning outcomes and identify assessment methods for cross-curricular skill requirements as outlined in Board Policy 2.3.9. Program review completed prior to Fall 2019 need not include cross curricular skills.**

Computer Science BS Program Cross-Curricular Skills

- Critical and Creative Thinking
- Problem Solving
- Inquiry and Analysis

Cross-Curricular Skills Assessment Methods

Dakota State University's online assessment platform (Vendor: Nuventive), Trojan Assessment Profile (TAP), is the repository for the Computer Science BS assessment plan and results reporting. In that online platform:

- Faculty select the Computer Science BS Program Learning Outcomes (PLOs) into which each of the cross-curricular skills are *embedded*.
- The same assessments used to determine PLO proficiency are used to measure student proficiency in cross-curricular skills.
- Faculty describe the major actions (instructional strategies) they will implement to ensure that students receive direct instruction in the cross-curricular skill or skills embedded in a Program Learning Outcome (PLO).