Student Learning Outcomes (SLOs) Report for <u>Non-Accredited Programs</u>

(*updated 9/19/23*)

Program Type: **Non-Accredited Program**

Program Name: **Computer Science (B.S.)**

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Submission Date: 10/23/2024

Review Cycle:
- o Even Year
- o Odd Year

Review Round:

- o **Round A** (Associate Dean review)
- o **Round B** (Associate Dean + VPAA review)

All SLO reports are archived here: https://www.eiu.edu/assess/majorassessment.php

DUE: **October 15th** to your Associate Dean or designee

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Each academic program is expected to prepare a Summary of the Assessment Data by Student Learning Outcome. This summary may take the form of a chart or other means of presentation that describes the annual data collected, when it is collected, in which course(s), through which assignment or activity, and by whom. This summary should clearly indicate what the program seeks to discover in its students' learning. The summary should correspond to the record-keeping documents maintained by the academic program.

Program Name: **Computer Science (B.S.)**

PART 1. OVERVIEW OF STUDENT LEARNING OUTCOMES AND MEASURES

Student Learning Outcome (SLO)	What **measures and instruments** are you using? This could be an oral or written exam, a regularly assigned paper, a portfolio—administered early and later in coursework.	How are you using this info to improve student learning? What are you hoping to learn from your data? Include **target score(s) and results**, and specify whether these were met, not met, or partially met for each instrument.	Does your SLO correspond to an **undergraduate learning goal (ULG)**: writing, speaking, quantitative reasoning, critical thinking, responsible citizenship?
Students will demonstrate knowledge of core mathematical content	Course grades from MAT 2442 – Calculus and Analytic Geometry II MAT 2345 – Discrete Mathematics MAT 2550 – Introduction to Linear Algebra MAT 3701 – Probability and Statistics I	The data are collected by the course faculty and the department chair. Course grade data are shared informally among course instructors and the department chair. Students who earn a "C" or lower typically are required to meet with their advisor to discuss potential issues and deficiencies that may be present moving forward. MAT 2442 - 41 of 58 students met or exceeded expectations from Fall 22 to Spring 24. MAT 2345 - 29 of 35 students met or exceeded expectations from Fall 22 to Spring 24.	CT-4, 5, 6 QR-1, 2, 3, 4, 5, 6

		MAT 2550 - 35 of 43 students met or exceeded expectations from Fall 22 to Spring 24.	
		MAT 3701 - 33 of 61 students met or exceeded expectations from Fall 22 to Spring 24.	
Students will become proficient in programming in a high-level object-oriented programming language.	Course grades and individual labs from CSM 2670 – Computer Science II	The data are collected by the course faculty and the department chair. Course grade data are shared informally among computer science faculty and the department chair. Students who earn a "C" or lower typically are required to meet with their advisor to discuss potential issues and deficiencies that may be present moving forward. Labs are examined and discussed prior to next course offering. Data from Fall 22 to Spring 24 Reported are the number of students who met or exceeded expectations out of 43 total students. Lab 1: 40 Lab 2: 40 Lab 3: 36 Lab 4: 37 Lab 5: 36 Lab 6: 31 Lab 7: 35 Lab 8: 36 Lab 9: 36 Lab 10: 34 Lab 11: 29	CT-3, 4 QR - 4

Students will understand the architecture, organization, and programming of modern computing systems.	Assessments and projects from CSM 3670 – Principles of Computer Systems CSM 4970 – Principles of Operating Systems	The data are collected by the course faculty and the department chair. Course grade data are shared informally among computer science faculty and the department chair. Students who earn a "C" or lower typically are required to meet with their advisor to discuss potential issues and deficiencies that may be present moving forward. CSM 3670: Fall 22 to Spring 24 Assessment 1: 14 of 21 met or exceeded expectations Assessment 2: 18 of 21 met or exceeded expectations Assessment 3: 16 of 21 met or exceeded expectations CSM 4970: Spring 23 Project: 8 of 9 students met or exceeded expectations	CT-3, 4 QR - 4
Students will learn the foundations of computer science, algorithm efficiency, and computational complexity	Assignments from CSM 4880 – Design and Analysis of Algorithms	The data are collected by the course faculty and the department chair. Course grade data are shared informally among computer science faculty and the department chair. Students who earn a "C" or lower typically are required to meet with their advisor to discuss potential issues and deficiencies that may be present moving forward. Labs are examined and discussed each prior to next course offering. Data from Spring 23 and Spring 24	QR - 4

Students will use current techniques, skills, and tools necessary for the practice of the discipline.

Completion of internship or similar applied experience (CSM 4275 – Internship in Computer Science). During the internship the student is evaluated by the site internship supervisor. In most cases there is a site visit or other regular communication between the student and the intern coordinator. The student must complete a report about the internship that details what work was done, how problems were overcome, and how the experience allowed him/her to apply what has been learned in the classroom to the field.

Reported are the number of students who met or exceeded expectations out of 13 total students.

Lab 1: 13
Lab 2: 10
Lab 3: 8
Lab 4: 9
Lab 5: 8
Lab 6: 5
Lab 7: 10
Lab 8: 8

Data are collected by the departmental internship coordinator.

Data are shared informally among the computer science faculty.

7 of 8 Students successfully completed the internship Summer 23 – Summer 24. The one unsuccessful internship was due to the student not submitting their final report.

The supervisor ratings show the following (no students were rated Below Average or Unsatisfactory in any category).

CT-3, 4
QR - 6

Internship	Excellent	Above Average	Average
Ability and Knowledge	3	5	
Progress on assignment	5	3	
Compliance with standards	6		2
Acceptance of responsibility	7		1

Oral and written expression	4	1	3
Accuracy and efficiency	2	5	1
Preparation	3	4	1
Cooperativeness	7	1	

PART 2. IMPROVEMENTS AND CHANGES BASED ON ASSESSMENT

A. Provide a short summary (1-2 paragraphs) or bulleted list of any **curricular actions** (revisions or additions) that were approved over the past two years as a result of reflecting on the student learning outcomes data. Are there any additional future changes, revisions, or interventions proposed or still pending?

Minor revisions to courses regarding labs and delivery of content have been made.

An introductory course in computer science, CSM 1000, was added to assist students who are not ready for MAT 1441G at the start of the major.

We added the requirement of a grade of 'C' or better for prerequisites in the Computer Science major. Due to the cumulative nature of many classes, this will help ensure students are prepared for such class sequences.

B. Provide a brief description or bulleted list of **any improvements (or declines)** observed/measured in student learning. Be sure to mention any intervention made that has not yet resulted in student improvement (if applicable).

The percentage of students that met or exceeded expectations in MAT 2442, MAT 2345, and MAT 2550 all increased. But the percentage for MAT 3701 decreased. These classes remain a focus of attention as students who struggle here often leave the major.

Internship completion rates remain high with no below average supervisor evaluations in any category. This highlights the success of our students in completing industry projects. New guidelines for the internship have been posted to assist students in completing their internship.

C. HISTORY OF DATA REVIEW OVER THE PAST TWO YEARS

Please document annual faculty and committee engagement with the assessment process (such as the review of outcomes data, revisions/updates to assessment plan, and reaffirmation of SLOs).

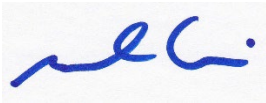| Date of annual (or periodic) review	Individuals or groups who reviewed the assessment plan	Results of the review (i.e., reference proposed changes from any revised SLOs or from point 2.A. curricular actions)
Fall 2023	Department Chair Computer Science Faculty Department as a whole at a department meeting	No changes recommended other than what was discussed above.

Department Chair
Computer Science Faculty
Department as a whole at a department meeting

No changes recommended other than what was discussed above.

Dean Review and Feedback

The BS in Computer Science 2-year assessment plan draws from multiple data points to measure five student learning objectives that are each tied to the EIU undergraduate learning goals. Assessment data were drawn, in part, from course grades in the following sections: MAT 2442, MAT 2345, MAT 2550, MAT 3701, CSM 2670, and CSM 4880, along with lab grades in multiple courses. The plan includes assessment and projects from CSM 3670 and 4970 and also includes a qualitative internship evaluation for each student conducted by the site internship supervisor (the internship course serves as the program capstone experience). The internship evaluation is a great example of an external means to measure student preparedness. Assessment data were shared with the department at faculty meetings in fall 2023 & 2024 and led in part to the development of CSM 1000 as a preparatory course in major. The department also strengthened prerequisites within the Computer Science major. Internship completion rates remain high with no below average supervisor evaluations in any category. While current assessment procedures indicate that students are meeting or exceeding assessment expectations, I urge the Computer Science faculty to consider standardized methods other than course grades to assess key SLOs in their program.

<u>11/26/24</u>

Dean or Designee   **Date**