Instructional Annual Program Review and Planning Update Form Fall 2024

## BACKGROUND:

**Program review is an integral part of the campus planning process. As programs and areas monitor their progress on the current comprehensive four-year program review, changes in need and scope can be expected. This Annual PR Update form is designed to outline and request modifications to the current program review that occur between comprehensive four-year review cycles, as needed.**

**Examples of a requested change include new information such as action plans, outcomes modifications, personnel changes, technology needs, and capital expenditures requirements. As programs and areas monitor their progress on the previous comprehensive four-year program review, the form provides the basis to suggest a change in plans and processes to improve student success and institutional effectiveness.**

## SUBMISSION:

**Program:**

Computer Science

**Principal Author(s):**

Andrew Clifton

**Dean:**

Samuel Foster

**Submission Date:**

12/02/2024 10:21:38 AM

**Author Signature:**

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| Electronically signed by Andrew Clifton on 11/27/2024 8:49:06 AM |

**Manager Signature:**

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| Electronically signed by Sam Foster on 12/02/2024 10:21:38 AM |

# Part 1: Review of Data

## Use the data provided by the Office of Institutional Effectiveness (OIE)--[available in August 2024](https://fullcolledu-my.sharepoint.com/:f:/g/personal/dberumen_fullcoll_edu/Ejn54PAVVhJLqimOjiLWBBYBPkPdoZEFZxZtScvvyibo6A)--to review your program completion and success rates and compare them to the Institution Set Standards for course completion and success rates. Then, answer these questions:

1. **Where your program meets or exceeds the college-wide standard for completion and success, to what do you attribute your success?**

The computer science program’s success and completion rates remain below the college-wide standard, with success at 53.4% and completion at 72.4%.

1. **Where your program does not meet this standard, please examine the possible reasons and note any actions that should be taken, if appropriate.**

As mentioned in (1), our success and completion rates have decreased slightly from last year: success declined from 55.6% in 2022-2023 to 53.4% in 2023-2024, while completion declined from 74.9% to 72.4%. This unfortunately reverses a trend of gradual increase in prior years. It remains to be seen whether this decrease is an outlier; we intend to check our success/completion rates at the end of the Fall 2024 semester.

As we have noted in previous years’ program reviews, there are several possible reasons why computer science students may have lower success/completion rates than other subjects:

• Prerequisite knowledge: Computer science courses may require background knowledge which is not fully captured in the official course prerequisites. Should a student not have completed essential foundational courses or lacks the necessary prerequisite knowledge, they may encounter challenges when tackling more advanced classes.

To address this, we are in the process of creating a “pre-introductory” computer science course (“CSci 100” in Curriqunet) for those students who require more foundational experience. We should be able to begin offering this course Fall of 2026, along with two other new courses (CSCI Seminar and CSCI Independent Study).

We are also working to develop dual-enrollment versions of our introductory courses, so that we can help bring the required background knowledge directly to the high schools which need it.

• Under-representation: The demographics of computer science as a field, while improving in diversity, remain unbalanced. This imbalance contributes to a lack of diversity in computer science classrooms, creating additional challenges for women and underrepresented groups in finding success within the subject.

• Difficulty: Computer science classes tend to pose a greater challenge compared to other subjects due to their demands for elevated technical proficiency and mathematical skill. Students often encounter difficulty comprehending and implementing programming languages and algorithms. Similar to other STEM courses, computer science classes frequently prioritize precision and correctness.

Furthermore, all of our courses are 4 units of lecture, compared with the more common 3 units, or 3 units lecture + 1 unit lab structure seen in many other computer science programs. While this allows us to cover more material and advanced topics (an element which many of our transfer students have expressed gratitude for) this also means that our courses include more material than many other lower-division computer science programs.

• Lack of Support: Some students may struggle in computer science courses due to insufficient support. Computer science courses may not have as many resources available to students, which can make it harder for students to get the help they need.

We continue to emphasize to students the availability of the Math and Computer Science Tutoring Lounge as a place where students can receive assistance without an appointment.

We also note that a long-time full-time faculty member retired in Spring of 2024. This of course will require us to reduce our section offerings in the short-term, which in turn will increase the time it takes for students to complete our program.

• Workload: Computer science courses can have a substantial workload, requiring students to spend significant amounts of time designing and evaluating programs, and completing assignments. The magnitude of the workload can be surprising and overwhelming for some students.

1. **Compare your data analysis in questions 1 and 2 to the review of data in your 2023 Annual Program Review update (available on the** [**Program Review and Planning Committee**](https://committees.fullcoll.edu/program-review/) **website). Are there significant changes? Do you notice any patterns from year to year?**

As mentioned in (2), we were previously on a slow but steady increase in both our success and retention metrics; our 2024 data has unfortunately reversed that trend, although only slightly. Our success/completion rates are still significantly higher than our 2020-2021 or 2021-2022 rates, so we hope that this 2% drop is an outlier.

# Part 2: Additional Resource Request Reasoning and Support

**We have reviewed our most recent self-study and have not identified any significant changes that necessitate resource requests for the upcoming academic year.**

**We have reviewed our most recent self-study and have identified significant changes that necessitate additional resource requests.**