

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

ACADEMIC SENATE

ACADEMIC PROGRAMS COMMITTEE

REPORT TO

THE ACADEMIC SENATE

AP-007-234

Program Review for M.S. in Computer Science

Academic Programs Committee

Date: 11/02/2024

**Executive Committee
Received and Forwarded**

Date: 03/06/2024

Academic Senate

**Date: 03/13/2024
First Reading**

BACKGROUND:

As part of Cal Poly Pomona's planning and assessment cycle for academic programs, a self-study was prepared by the Department of Computer Science. An external review team consisted of Dr. Eun-Young Elaine Kang (Computer Science from California State University, Los Angeles) and Christopher Ryu (Computer Science from California State University, Fullerton) who visited the department virtually on April 21, 2022 followed by an on-campus visit on April 27, 2022. After their discussions with Dr. Alison Baski (Dean of the College of Science), Dr. Daisy Tang (Chair of the Department of Computer Science), department tenure-line faculty, adjunct faculty, and students, a report was prepared and submitted by the external reviewers, after which both the Department and Dean prepared responses. In addition, an internal review was conducted on May 21, 2022 by Dr. Kimberley A. Miller (Agricultural Science) and Dr. Amàlia Llombart (English & Modern Languages). The Academic Programs Committee has deliberated on the reviews and responses.

RESOURCES CONSULTED:

Dr. Daisy Tang, Chair, Department of Computer Science
Dr. Alison Baski, Dean, College of Science

DISCUSSION and RECOMMENDATION:

The review is directed at identifying areas for improvement and growth, which has been divided into strengths, challenges, and recommendations. The external reviewers praised the quality of the M.S. in Computer Science program, noting the "collegial working environment" and "enrolled students who are well suited for success." A clear strength of the program is the curriculum, which is well designed with core courses, electives, and culminating experiences (e.g., project or thesis). In addition, the external reviewers observed that the department chair provides strong leadership, faculty remain highly motivated in their teaching and research, and students are vetted carefully for admission (e.g., 30% admission rate with only 30% approximately enrolling). The external reviewers also noted a few challenges/weaknesses such as the need to align the Program Educational Objectives (PEO) and Student Learning Outcomes (SLO) more closely with the University's and College's mission and vision to include a statement about social, environmental, and ethical responsibility. More specifically, PEO #1 needed revision to state the aim rather than a list of job titles.

The external reviewers made several recommendations, noting opportunities for improvement:

- While the curriculum includes depth and breadth of study, sequencing of courses, and ample culminating opportunities for students to demonstrate the achievement of SLOs (e.g., project or thesis), the department is encouraged to consider offering concentrations to provide deeper study in specific computing areas, such as cybersecurity.
- As part of addressing the fast-changing educational environment, the department is encouraged to open a discussion about offering classes in various instructional

modes: virtual, asynchronous, hybrid, and in-person for the M.S. in Computer Science program.

- In the attempt to alleviate the overwhelming workload for the graduate coordinator, the department is encouraged to hire a dedicated assistant to allay the heavy burden.

The Department and Dean's office appreciated and acknowledged the reviewers' comments and suggestions. In response, the Department of Computer Science met to prepare their post self-study action plan: short-term priorities and long-term priorities. The Department indicated their intent to refine the PEOs and SLOs and align them more closely with the University's and College's mission and vision. Furthermore, the Department has begun a discussion about implementing various delivery modes for instruction, but indicated the need for College and University support in the area of scheduling with flexibility in order to offer classes in different instructional modes. With regards to the graduate coordinator role, the Department is considering the possibility of creating two positions: one for pre-admission/admission and the other for matriculation.

As a result of the recommendations, a few questions were raised by the Academic Programs committee, which Dr. Daisy Tang, Chair of the Department of Computer Science, addressed during the consultation process. The questions and her responses appear here (see below):

1. To what degree have the recommendations from the internal reviewer report and especially the external reviewer report, generally, been helpful to improve the quality of the M.S. in Computer Science?
 - The recommendations from the report have been constructive that led the department to evaluate our MSCS programs from many different perspectives. For example, the alignment of the program PEOs with the university mission & values; the capacity of the program; possibility of offering more online classes/options.
2. Which 1 or 2 recommendations has or will the Computer Science Department implement in the foreseeable future as top priorities? Why is it, or why are they priorities?
 - We have started working on revisiting the PEOs to make them align with the University/College Mission, Vision, and Values.
 - We are in the process of creating a roadmap and developing career pathways in the M.S. programs.
 - We also started looking into the plausibility of an online MSCS program.
 - We started with the above because there are faculty who are interested in working on them, and it doesn't need additional resources other than devoted time.

As the Dean of Science acknowledged, the department has short-term priorities in the areas of curriculum (e.g., revising PEOs, developing roadmaps, delineating career pathways) and assessment, especially to determine the optimal size of the program given its teaching capacity. The short-term priority of adding another administrative staff member for support was completed in February 2023. For the long-term priorities, the department plans to explore possible online components and/or a possible online self-support program. In addition, the Department aims to establish a more sustainable workload model to manage admissions and advising duties for the program. The Dean of Science supports the Department's search for tenure-line faculty to address and alleviate the workload issues raised in the program review.

The Academic Programs Committee commends the Department of Computer Science for their hard work and fortitude, especially in the delivery of their M.S. in Computer Science program during the COVID-19 crisis. The Department prepared a comprehensive and balanced review that highlights relevant issues affecting the Department, College, and University.