Comprehensive Program Review Report

Program Review - Computer Science

Program Summary

2023-2024

Prepared by: John Redden

What are the strengths of your area?: Strong growth, high student interest, real world work force relevance. Our CSCI program at COS offers "industry standard" instruction in C++, MATLAB and Microsoft Visual Studio. These are "resume building" skills.

What improvements are needed?: We continue to search for quality instructors, plagiarism abatement strategies, and increased offerings. We currently staff the courses with interested Math faculty. We do request a full-time computer science instructor to offer the courses and grow the program.

FTES Growth: 2021 - 28.10 => 2022 - 37.37 => 2023 - 43.5

This is nearly 55% growth in just a few years with FTEF at 2.49 for the 2022-23 school year.

We continue to see increased CSCI course enrollments.
2019-20 145 census enrollment
2020-21 185 census enrollment
2021-22 218 census enrollment
2022-23 276 census enrollment

Out of the 276 students in CSCI, 41 were female, that is 14.9% of the students. Gender diversity in this discipline is a known issue and will be monitored.

Program Awards (AST) 13. That is up from 7 last year, a 85.7% increase. For context, math had 18 awards!

Describe any external opportunities or challenges.: 1. The CSCI program continues integrates with our Friday Night Lab program. The FNL program allows students to work on "real world" projects in professional group settings. The program has been endowed and enjoys a healthy budget.

2. We continue to offer a local chapter of the Google Developer Group (GDG) which meets once a month and offers industry standard learning opportunities as a means to bring real-world computer science experience to the central valley. This activity, in partnership with Google, has been folded into our "Friday Night Lab" (FNL) program.

3. We have had contact with outside industries and plan to follow up and expand this list. These partnerships have led to activities such as NASA and TCOE projects.

4. SURGE funding has ended. However, Dr. Owens, Mr. Redden, and Mr. Baig have planned on using new "Endowment" funding administered by the COS Foundation to bring back a local version of this program. Through the FNL program, students will enjoy local research opportunities and incentives.

5. The CSCI program now has supplemental instruction through the SI program. And qualified tutors in the Saturday tutoring offering through the MESA program. Tutoring opportunities have expanded greatly.

The ongoing challenge is to recruit interested faculty members to share the workload that comes with these endeavors.

An interdisciplinary group of faculty interested "Data Science" are working toward development of a data science pathway here at COS. This new program is in the development phase.

Overall SLO Achievement: Overall success rate in the department is around 69.1% for the 2022-23 year. This is up slightly form the previous year of 65.1%.   Post-covid improvement is on track.

Changes Based on SLO Achievement: SLO reporting is slow due to part-time faculty issues and the fact that there is not a dedicated full time instructor assigned to this program.

Other changes include:
1. More hands-on and diverse labs (math, engineering AND business examples) for all course offerings.
2. Modify programming lab assignments to combat the "copy-and-paste" problem.
3. Design labs in the age of LLM's like that of chatGPT.
4. Recruit female students.

Overall PLO Achievement: Success is on track around 69%.

Changes Based on PLO Achievement: There is room for success improvement in the beginning courses. Also, recruitment of female students has been initiated.

Outcome cycle evaluation: The ongoing development of the CSCI program is progressing well. Program growth continues and faculty participation in the program is increasing. Further development of a Data Science pathway will offer our community well rounded computer science instruction. This program enjoys a good reputation here at COS.

Related Documents:
CSCI 2023 Program Review Data.pdf

Action: 2022-2023 Increase Enrollment

Increase enrollment by 10%.

Leave Blank:
Implementation Timeline: 2022 - 2023
Leave Blank:
Leave Blank:
Identify related course/program outcomes:
Person(s) Responsible (Name and Position): John Redden, David Jones, George Woodbury
Rationale (With supporting data): Inspire CSCI 001 students to continue with the computer science pathway.
Priority: Medium
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2021-2025
District Objective 1.1 - The District will increase FTES 2% from 2021 to 2025.
District Objective 2.1 - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.
District Objective 2.4 - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

Action: 2022-2023 Develop a Python Course

Create a Python programming course that will stress data science topics.

Leave Blank:
Implementation Timeline: 2022 - 2023
Leave Blank:
Leave Blank:

Program Review - Computer Science

Identify related course/program outcomes: District Objective 1.1 The District will increase FTES by 1.75% over the three years. District Objective 2.1 Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years.
Person(s) Responsible (Name and Position): John Redden
Rationale (With supporting data): There is a national push to increase machine learning and artificial intelligence workers in America.
Priority: High
Safety Issue: No
External Mandate: Yes
Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2021-2025
District Objective 1.1 - The District will increase FTES 2% from 2021 to 2025.
District Objective 2.1 - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.
District Objective 2.4 - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

Action: 2022-2023 Offer Local Research Opportunities

Participate in the Friday Night Lab student research program.

Leave Blank:
Implementation Timeline: 2022 - 2023
Leave Blank:
Leave Blank:
Identify related course/program outcomes: District Objective 2.1Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years
Person(s) Responsible (Name and Position): John Redden, David Jones, Larry Owens
Rationale (With supporting data): We always encourage hands-on real-world learning.
Priority: Medium
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2021-2025
District Objective 1.1 - The District will increase FTES 2% from 2021 to 2025.
District Objective 2.1 - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.
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Action: 2022-2023 Department Meetings

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Meet with all instructors teaching in the CSCI program and discuss curriculum development and program future.

Leave Blank:
Implementation Timeline: 2022 - 2023
Leave Blank:
Leave Blank:
Identify related course/program outcomes:
Person(s) Responsible (Name and Position): John Redden
Rationale (With supporting data):
Priority: Medium
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2021-2025
District Objective 1.1 - The District will increase FTES 2% from 2021 to 2025.
District Objective 2.1 - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.
District Objective 2.4 - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and   attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

Action: 2023-2024 Request Full-Time CS hire

Request to hire a full-time faculty member so that we can grow the CSCI program to it's full potential here at COS.

Leave Blank:
Implementation Timeline: 2023 - 2024
Leave Blank:
Leave Blank:
Identify related course/program outcomes: Objective: Grow the CSCI program.
Person(s) Responsible (Name and Position): John Redden
Rationale (With supporting data): The program enjoys good growth where it is becoming difficult to staff the courses with qualified instructors.
Priority: Medium
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 1.1 - The District will increase FTES by 1.75% over the three years
District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years
District Objective 2.2 - Increase the number of students who transfer to a four-year institution by 10 percent over three years
District Objectives: 2021-2025
District Objective 1.1 - The District will increase FTES 2% from 2021 to 2025.

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District Objective 2.1 - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.
District Objective 2.4 - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

Action: 2023-2024 Offer Local Research Opportunities

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Person(s) Responsible (Name and Position): John Redden, David Jones, Larry Owens, Dillon Allen
Rationale (With supporting data): We always encourage hands-on real-world learning.
Priority: Medium
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2021-2025
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Action: 2023-2024 Develop a Python Course_1

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Identify related course/program outcomes: District Objective 1.1 The District will increase FTES by 1.75% over the three years. District Objective 2.1 Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years.
Person(s) Responsible (Name and Position): John Redden, Quinn MacPherson
Rationale (With supporting data): There is a national push to increase machine learning and artificial intelligence workers in America.
Priority: High
Safety Issue: No
External Mandate: Yes

Safety/Mandate Explanation:

Link Actions to District Objectives

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