What are the strengths of your area?:
We closely follow the CID recommendations for computer science 1 and 2. To further maximize transferability, we also employ an early objects pedagogical approach. In addition, we use and collaborate on a single Blackboard shell guided by our student learning outcomes. Finally, we would like to point out that we offer computer science using C++, the industry standard, rather than JAVA.

We currently offer one CSCI 001 course in the fall and one CSCI 002 course in the spring. Success rates follow:

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Course</th>
<th>FTES</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010/11</td>
<td>Fall</td>
<td>CSCI 001</td>
<td>3.6</td>
<td>56%</td>
</tr>
<tr>
<td></td>
<td>Spring</td>
<td>CSCI 002</td>
<td>1.3</td>
<td>100%</td>
</tr>
<tr>
<td>2011/12</td>
<td>Fall</td>
<td>CSCI 001</td>
<td>4.5</td>
<td>64%</td>
</tr>
<tr>
<td></td>
<td>Spring</td>
<td>CSCI 002</td>
<td>1.7</td>
<td>77%</td>
</tr>
<tr>
<td>2012/13</td>
<td>Fall</td>
<td>CSCI 001</td>
<td>3.5</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>Spring</td>
<td>CSCI 002</td>
<td>1.1</td>
<td>50%</td>
</tr>
</tbody>
</table>

Furthermore, we also have had success beyond the rates provided. We have seen several students go on to obtain computer science degrees at Fresno State and others who use C++ in their upper division research projects. Currently, a formal list of such successes does not exist. Dialog on how to compile and store such a list is in the plan moving forward.

What improvements are needed?:
With increased Wi-Fi access, we are able to add more students beyond the capacity of the computer lab. However, increasing the course enrollment beyond the capacity of the lab may be part of the reasons for waning success rates. In addition, we have had requests from counselors to offer more sections. For this reason, we recommend a conservative approach of adding 1 section of CSCI 001 to the spring schedule so that it is offered each semester of the school year.

The statistics also indicate that low enrollment in CSCI 002 is an issue. If an extra CSCI 001 course is offered, CSCI 002 enrollment may also increase. Even though CSCI 002 is often not required for transfer, it is in our plan to advertise and stress the importance of finishing the sequence for a full and rich treatment of computer programming. This effort will be coordinated with MESA/SETA, and results will be tracked on an ongoing basis.

From informal student surveys, we have found that the current mathematics computer lab computers could be maintained and updated more often. It also has been identified that this process of student survey should be incorporated more formally into our end of year assessment.

In addition, we have plans to incorporate more real-world applications and address the waning success rates in recent years. To do this, we have established a baseline for common student learning outcomes which will be used for comparison moving forward. In the first round of assessments, we have established baselines for CSCI 001 and CSCI 002.

Describe any external opportunities or challenges:
The future prospects of CSCI at COS currently look rather promising. We have expanded external operations greatly and include the following:

1. We have established a local chapter of the Google Developer Group which meets once a month and offers other learning opportunities as a means to bring real-world computer science experience to the central valley.
2. We have submitted a SURGE project and hope to expand this opportunity for real-world application development. This includes web application and smartphone application development.
3. We have had contact with outside industries and plan to expand further our contacts with outside groups and maintain an accessible resource list. With these initiatives, we hope to see improvement in identified enrollment issues and baseline SLO success.

To further extend opportunities, we are considering reaching out to the Business department and others to begin the formal request for a cohesive computer science department and certificate.

Overall Outcome Achievement: In the first round of assessments, we have established SLO baselines.
In addition to the issues identified above, we have also found a high variability in computer skill levels upon entry to the course. In response, instructors are using Blackboard in innovative ways to obtain early alerts to those students that lack the basic computer skills needed for success.

Our overall success rate varies due in part to the small sample sizes. However, based on average success rates of 55% in CSCI 001 and 76% in CSCI 002 and student learning outcomes, a multilateral approach to increasing success, enrollment, and real-world developer experience is planned.

Our courses are single section courses each semester and therefore the sample size is extremely small, however the percentage of students considered proficient (scoring at least a 3 on a 5 point rubric) was approximately 85% as recorded in TracDat.

**Changes based on outcome**

To facilitate alignment with the CID, we converted CSCI 001 to an early objects approach using C++. We also expanded the topic list in both of the shared blackboard instances. The CSCI 001 and 002 blackboard courses will change and evolve from semester to semester based on SLO achievement and changing technology.

Furthermore, tracking of achievement in correlation with actions in and out of the classroom, such as SURGE projects and GDG, is being formalized. The primary means of tracking will be conducted using TracDat and this program review process. However, the collaborative nature of the blackboard course workflow will continue as well.

We plan on coordinating with other departments to create a more streamlined computer science program. We will continue to assess both our courses and use the results of our SLOs to make changes in the hopes of improving learning.

**Outcome cycle evaluation:** We have just finished year one of a three year cycle. We have the full corporation of every member who teaches these courses and have plans to reach out to other departments.

**Action: New Course Offering**

Add one additional new CSCI 1 to the course schedule.

**Implementation Timeline:** 2015 - 2016

**Start Date:** 08/03/2015

**Status:** New Action

**Person(s) Responsible (Name and Position):** Jared Burch / Division Chair

**Rationale (With supporting data):** We have been over capacity in the classroom for at least the last five years. In addition more offerings were requested by the MESA advisor to meet needs.

**Priority:** High

**Safety Issue:** No

**External Mandate:** No

**Action: Coordinated Computer Science Program**

Coordinate with the Business Department to create a streamlined and cohesive computer science program.

**Implementation Timeline:** 2015 - 2016

**Status:** New Action

**Person(s) Responsible (Name and Position):** Robert Urtecho / Dean

**Priority:** Medium

**Safety Issue:** No

**External Mandate:** No

**Action: SURGE Project**

Supervise a computer science based SURGE project

**Implementation Timeline:** 2014 - 2015

**Status:** New Action
Person(s) Responsible (Name and Position):

Priority: Medium

Safety Issue: No

External Mandate: No