Comprehensive Program Review Report

Program Review - Earth Science

Program Summary

2020-2021

Prepared by: Eric Hetherington
What are the strengths of your area?: The Earth Sciences heading includes ESCI 1 Introduction to Earth Science and a course in Geographic Information Systems (ESCI155).
ESCI 1 is a required course for the Liberal Studies Transfer program to Fresno State University. Enrollments in ESCI 1 have traditionally been strong and pass rates (90% in 2019-2020) are relatively high compared to those of other science courses. This course is taught exclusively by adjunct faculty who work closely with the geology chairperson to ensure that the resources of the geology program are available to earth science students.

ESCI 155 Introduction to Geographic Information Systems is a new (first taught in Spring 2020) transferable course with applications in many disciplines; it is hoped that this course will develop enrollment commensurate with its usefulness.
What improvements are needed?: Efforts to improve enrollment in ESCI 155 are needed. Perhaps most promising development is the anticipated inclusion of the class in a new-for-Fall 2021 surveying certificate in the Engineering department.
Describe any external opportunities or challenges.:
Overall SLO Achievement: In the most recent assessment (2017-2018) , SLO Achievement Rates for ESCI1 were near 100%. ESCI 155 has yet to be assessed.
Changes Based on SLO Achievement: None.
Overall PLO Achievement:
Changes Based on PLO Achievement:
Outcome cycle evaluation: ESCI 1 is next schedule for assessment in the 2020/21 academic year.

Action: GIS certificate funding.

The anticipated new certificate in Geographic Information Systems requires funding for:

1. an annual software subscription that currently costs $2000 from the Foundation for California Community Colleges;

2. an adjunct faculty member to teach the courses (adjunct faculty currently employed by COS have the expertise to teach these offerings).

Leave Blank: Nonessential/Nice to have
Implementation Timeline: 2019 - 2020
Leave Blank:
Leave Blank:
Identify related course/program outcomes: Pertinent district objectives include:
- 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 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points.

Person(s) Responsible (Name and Position): Eric Hetherington
Rationale (With supporting data): Geographic Information Systems (GIS) utilize computer technology to gather, store, manipulate and display spatially-referenced information. GIS is in widespread and expanding use in almost all avenues of human endeavor: agriculture and food production, civil engineering, health care and disease control, humanitarian assistance,

insurance, manufacturing, mining, national security, natural hazard mitigation, natural resource management, oil and gas production, planning at any level (city, county, state, federal and global), renewable energy development, sales, surveying, transportation, all branches of the military, all sciences that deal with spatial data...any list is a partial list!
Nearby institutions offering training in GIS include CSU Fresno, CSU Bakersfield, and Bakersfield College that offer certificates; and Fresno City College and West Hills College that each offer an introductory course in GIS, but not a certificate. No GIS courses are offered at Fresno Pacific University, Porterville College or San Joaquin Valley College. With the exception of Bakersfield College, COS would be the only community college in the area to offer a GIS certificate.
A certificate program at COS would not only contribute to the vocational success of our students, but it would address the growing demand for GIS skills in the local economy. In addition, GIS courses could constitute useful electives for students in many majors.
Priority: High
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2020 - 2021 10/01/2020
Status: Continue Action Next Year
ESCI 155 has been offered twice and taught only once due to low enrollment. An enrollment increase may result when a new COS certificate in surveying, for which ESCI 155 is required, is debuted (anticipated in Fall 2021); however, the requisite enrollment to support a separate GIS certificate is not expected to be available. However, funds to cover the subscription expenses are necessary to offer the class.
Impact on District Objectives/Unit Outcomes (Not Required):

Update Year: 2020 - 2021 09/25/2020
Status: Action Completed
Update XOXOX
Impact on District Objectives/Unit Outcomes (Not Required): We developed partnerships with local agencies and increased enrollment in Earth Science courses.

Resources Description

Technology - Annual subscription to Geographic Information Systems computer software from ESRI. (Active)
Why is this resource required for this action?: GIS software is necessary for instruction and student use in the course ESCI 155 Introduction to Geographic Information Systems which we hope to debut in Fall 2019.
Notes (optional): From the Foundation for California Community Colleges website in Fall 2018 (http://foundationccc.org/CollegeBuys/For-Colleges/Our-Partners/Instructional-Technology):
"An unlimited site license for GIS software from Esri is now available for California community colleges through the Foundation for California Community Colleges for discounted purchase... The Education Site License is available from the Foundation at the reduced annual rate of $2,000."
Cost of Request (Nothing will be funded over the amount listed.): 2000

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 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

Program Review - Earth Science

District Objectives: 2015-2018
District Objectives - 1.1 - Increase overall enrollment by 1.75% annually
District Objectives - 2.2 - Increase the number of students who earn an associate degree or certificate annually.

Action: 2020-2021 Implement hybrid outreach activities to improve lab success rates.

Faculty will participate in online workshops, students will receive take-home lab kits. Online and hybrid courses will be assessed, success rates will be analyzed in comparison with in-person courses.

Leave Blank:
Implementation Timeline: 2020 - 2021
Leave Blank:
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Identify related course/program outcomes: Students will be able to identify specific rocks and fossils.
Person(s) Responsible (Name and Position): Division Dean and Division Chair
Rationale (With supporting data): Course success rates have been stagnant for the last two years, at 55 percent, accomplishing.....
Priority: High
Safety Issue: No
External Mandate: Yes
Safety/Mandate Explanation:

Link Actions to District Objectives

District Objectives: 2018-2021
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 Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points