Geology/Earth Science

2019 Program Review

MJC Program Review 2019

Modesto Junior College's Program Review process is divided into 3 sections:

- Program Analysis (SWOT Analysis)
- Goal Setting and Activities
- Resource Request

Program Analysis

Internal Strengths

1. What strengths does the analysis of student data reveal?

The data reveal that the earth science/geology program is robust and is consistently producing 50-60 transfers in the major each year. (However, the data for Earth Science Program is likely bad. In MJCs database system, the Earth Science Program data is mistaken for the Natural Science degree Program.)

2. Are there specific aspects of the program that are exemplary or could serve as a model?

For fifteen years, the geology program has offered a unique summer field studies collaboration with the anthropology program at MJC that takes students from both fields and provides them with invaluable multidisciplinary experiences. The labs in all Earth Science courses involve a cooperative group-learning model that emphasizes development of group process skills, teamwork skills, and executive functions.

3. What do others see as the program's strengths?

The comprehensive nature of the field studies courses at MJC is recognized as major component of student success in the major.

4. How well are students meeting program learning outcomes, skills, or competencies; and how are they relevant to careers in your discipline or industries for which you help prepare students?

Success rates and SLO data suggest that he students in the earth sciences/geology are receiving excellent preparation for transfer to four-year institution, which will later translate to successful careers in geology/earth science or related fields such as teaching.

Internal Weaknesses

5. What gaps are observed by reviewing the student data?

The data provided revealed few gaps.

6. What disproportionate gaps need to be addressed?

What gaps exist are small, 1% or less, and thus appear to be well-addressed already. The program provides equitable access to all students.

7. What are areas in which the program could improve? (curriculum, scheduling, modality, other?)

There is a huge demand for introductory Earth Science courses (EASCI 161) that could be eased with the addition of another full-time faculty member. (This course was recently added to CSUS list of required courses for student transfers into their teacher-prep program). Also, we believe access to textbooks and related course material is problematic for some students (due to rising textbook costs). Also, the laptop computers used for Earth Science cooperative group labs are aging and will soon need to be replaced.

8. Where are there gaps in the program on how students are meeting learning outcomes, skills, or competencies?

Some students may be not achieving their associate degree because of an unmet need for better math training in high school (calculus).

External Opportunities

9. Where are potential opportunities for expansion, improvement, or new program development?

'-ZTC: implementing ZTC curriculum -Providing expanded opportunities for students to gain experience through community partnerships with groups like the Tuolumne River Trust -collaborate with CSUS to better align Earth Sci content to teacher prep coursework at CSUS.

10. What are some industry or disciplinary trends that could enhance the program?

Water resources, climate change, and land-use issues will require vastly increased numbers of earth science/geology majors in coming decades. ONET shows that every Earth Science related professional field has a bright outlook.

External Threats

11. How are changing resources, technology, employer, or transfer requirements affecting the program's ability to serve students?

Cuts to the PTOL budget could severely impact our ability to offer Earth Science courses. (40% of all Earth Science courses are taught by adjunct). Also, the aging set of laptop computers, which are critical to Earth Science cooperative group learning model, are also a looming threat.

12. What are some current industry or disciplinary trends that could have a negative impact on the program?

Some high school districts are, rightly or wrongly, de-emphasizing earth science courses, which could impact career opportunities for earth science teachers.

13. What other obstacles does the program face?

The earth science/geology program is limited only by financial resources within the district. Course enrollments could support an additional faculty member. Also, the aging class set of laptop computers, which are critical to Earth Science cooperative group learning model, need to be replaced very soon.

Goal Setting and Activities

Goals

Program Goal	Mission Alignment	Area of Focus
1. Increasing the number of successful transfers with ADTs in Geology and also into the LIBS pre-teaching program at CSUS	Workforce Needs	Program Design
2. Increase multidisciplinary collaboration in field studies	Innovative Education	Curriculum
3. Implement ZTC into more courses	Equity	Curriculum

Activities

Activities	In Support of Goal #	Outcome or Deliverable
1. Hiring an additional full-time faculty member	Goal #1	Increased Geology ADT awards and transfers in CSUS pre-teaching
2. Conducting an interdisciplinary field studies course with faculty in a new area, i.e. biology	Goal #2	New field course experience

3. Updating classroom technology	Goal #1	Continuity and enhancement of innovative cooperative group learning models
4. Develop course in Environmental Geology	Goal #1	New course
5. Redesign curriculum to a ZTC model	Goal #3	Conversion to ZTC

Resource Requests

Category	Request	Activity #	Estimated Cost
Prof. Devel.	Research for developing new course	4	2000
Prof. Devel.	Research and work to convert courses to ZTC	5	4000
Equipment	Topographic map laser model	3	8000
Equipment	24 portable computers/tablets for geology labs	3	12000
Equipment	24 laptops/tablets foe Earth Sci labs (to replace existing)	3	12000
Personnel	1 full-time, tenure track faculty	1	100000