

Biological Sciences

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?

Program growth over time Term-to-Term Retention is keeping pace with our Region Student Awards show an increasing trend over the 3 years shown Data demonstrates clear ongoing increases to Biology Program Completers since 2011-2012. The percentage of students earning a satisfactory grade has remained fairly constant (around 75%) for most ethnicities. There does appear to be an exception with African American Students. This student group shows a moderate increase over the time period shown, with a low of around 40% and a high of around 67%. This is a rather small cohort (16/17 = 49 total students)

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

While the ongoing program growth and improving success rates for African American Students are welcome and impressive, it is not clear as to what circumstances have lead to these trends Departmental connections between instructional resources and the community are strong. Such resources are the Great Valley Museum, MAPS Presentations, the Planetarium and the Great Valley Nature Lab

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

Program Award Growth Increases to Biology Program Completers Increased success trend for African American Students Success in subsequent program enrollments

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?

Discussions among Biology faculty suggest that program goals for the MJC Biology Department have satisfactory results at this time. Further efforts should be undertaken to better document these Program Learning Outcomes. This should help to identify specific activities and programmatic components that lead to student and program success.

Internal Weaknesses

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

Data shows a slowing in the rate of increase for Biology Program Completers. This data should be monitored and taken into consideration. It should be determined if this slowdown is due to reaching a capacity plateau, decreased overall enrollment or due to some other internal factor

6. What disproportionate gaps need to be addressed?

The success rate for African American Students has increased over time but has demonstrated fluctuation over the semesters shown. Some attention should be focused on showing that this improvement can be maintained

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

The Biology department has CSLOs that require the use of Microscopes by our students, but we do not have enough functioning scopes to properly meet these goals. Further exploration of the Biology Majors Sequence would likely be beneficial. There has been regular discussion regarding both planned and unplanned content overlap in the biology majors sequence. There have, however, not been decisions as to how we should proceed and what our precise goals might be relating to this area. The department should continue to explore mechanisms to share instructional resources, especially in the area of lab related content. There should also be a review of CSLOs and PLOs for our program and students. The department has had discussions regarding the possibility of offering a wider selection of non-majors biology course offerings.

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

No gaps have been noted by the department at this time with regard to meeting learning outcomes, identified skills or competencies.

External Opportunities

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

Program expansion and new program development would require additional Biology Faculty, as well as additional equipment and supplies. The department is working with Universities to build and strengthen relationships. This is particularly true in the area of Marine Biology Continued partnerships and relations with the Great Valley Museum provide good opportunities to interface with the surrounding communities. The new Great Valley Nature Lab will provide numerous opportunities for program expansion and connections with surrounding communities
 MAPS (Modesto Area Partnership for Science) is a terrific model to explore community interest in science related topics

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

Biofuel production and development Ongoing focus towards issues relating to climate change

External Threats

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

Funding is needed to augment the number of Biology Faculty and to maintain sufficient breadth within areas such as Zoology, Ecology and Marine Biology. Predicted retirements within the Biology Department will affect our ability to respond to current student needs. Technology resources relating to video projection systems is in great need of attention in our laboratory spaces. Current video resources in labs is very inconsistent and affects our ability to present materials to students and meet learning outcomes A funding source needs to be identified to replace broken and obsolete microscopes and other biology lab equipment. Decrease over time in college level support for MAPS presentations that are designed to increase scientific literacy in the community and improve public relations

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

With regard to current industry or disciplinary trends, the primary concern is an ongoing reduction of contact hours with students and the reduction or loss of critical prerequisites.

13. What other obstacles does the program face?

Current obstacles that the program have identified are addressed above.

Goal Setting and Activities

Goals

Program Goal	Mission Alignment	Area of Focus
To add Biology Faculty with expertise and	Programs / Services	Curriculum

background in the areas of Zoology and/or Marine Biology and/or Ecology	based on Scholarship of Teaching and Learning	
To maintain an increasing trend in the number of Biology Program Student Awards. Using the 2015/2016 Year as a baseline we strive to maintain an average annual increase of at least 20%	Workforce Needs	Curriculum
Reduce impact to students and program due to broken and obsolete equipment required to meet designated Learning Outcomes and student needs.	Programs / Services based on Scholarship of Teaching and Learning	Pedagogy

Activities

Activities	In Support of Goal #	Outcome or Deliverable
Work with students and counselors to identify potential barriers relating to the attainment of Biology Program Student Awards	Goal #2	Program Review Data showing an average annual increase of at least 20%
Advocate and provide meaningful rationales for the addition of program faculty with background focused in the areas of Zoology and/or Marine Biology	Goal #1	An increase if the FTE value for Biological Sciences
Identify a funding source to replace broken and obsolete microscopes, Spectrophotometers, Molecular Biology Equipment, Biological Field Equipment and biological models	Goal #3	Numbers of microscopes and models that match student enrollments for biology courses
Biology majors sequence curricular review: Primary focus would be to evaluate the appropriateness of content overlap and potential sequencing for the majors Biology, Botany and Zoology components	Goal #2	A positive outcome would be documented meetings leading to a decision to either maintain or reinforce the content connections between our majors courses
Redesign Marine Biology course content and learning activities to provide students an important and relevant Natural Sciences option	Goal #2	Increase the number of offerings and student enrollments in marine biology courses

Resource Requests

Category	Request	Activity #	Estimated Cost
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Equipment	Microscopes for SCC 214 (26 @\$1800)	3	46800
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Equipment	Marine Biology Field Equipment: Refractometers (6 @ \$160)	5	960
Personnel	Biology Faculty (Focus on Zoology, Ecology or Marine Bio)	2	80000
Other	Biology, Zoology and Cell Biology Models	3	7500