

Instructional Program Review 2019/20 UPDATE

Biology

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General Information (Instructional Program Review 2019/20 UPDATE)

2019/20 Instructional Program Review

SUBMISSION INFORMATION AND UPDATES (REQUIRED)

- Name of Lead Writer: Anne Geller and Anar Brahmbhatt
- Name of Liaison: Ian Kay
- Department Chair: Jennifer Carmichael and Todd White
- Name of Manager/Service Area Supervisor: Susan Topham
- Is this a CTE program? (State Yes or No): No

Updates for this PR cycle include:

- We have hired a new faculty member for anatomy and physiology (Kaitlin Tiffany) to start Spring 2020
- We terminated an incompetent, unqualified microbiology ILT and are in process of hiring a replacement (with hopes to begin in spring 2020)
- There have been no changes to our mission statement
- Our goals have been slightly modified from last cycle (see goal update for details)
- We have been successful in obtaining an ADT for a Biology major
- We are including requests for BARC, CHP & FHP in this cycle (see request portal for specifics)

OUTCOMES AND ASSESSMENT (REQUIRED)

Form: 2019/20 Program Review Outcomes and Assessment Section (See appendix)

PROGRAM ANALYSIS FOR EQUITY AND EXCELLENCE (REQUIRED)

Form: 2019/20 Program Review Instructional Program Analysis Section (See appendix)

PROGRAM GOALS (REQUIRED)

Biology Program Goal 2018-2019: Department Faculty and Staff Hiring

Ensure adequate contract faculty staffing for the Biology department

The Biology department is a very large, dynamic, and successful program. The department teaches an average of 90 sections per semester with an average FTEF of 26.8 and as of Spring 2018, our tenured FTEF ratio is at 33%, down from 38% in Spring 2014. With the recent hiring of three new faculty members, this ratio should have improved slightly but is now offset by the retirement of another faculty member, non-renewal of contract for another faculty member, and the increase in FTEF due to the addition of new Biology sections. We will receive another new hire in the fall 2019 semester, but still require at least the addition of one full time faculty in the area of microbiology/general biology, and potentially one more for anatomy and physiology/general biology. This is to keep up with the demands of classroom and non-classroom assignments required of our faculty along with increase in sections.

Mapping

CA- Mesa College Strategic Directions and Goals: Strategic Goal 1.1, Strategic Goal 1.2, Strategic Goal 1.3, Strategic Goal 1.4, Strategic Goal 1.6, Strategic Goal 2.1, Strategic Goal 2.2, Strategic Goal 2.3, Strategic Goal 2.4, Strategic Goal 2.5, Strategic Goal 3.1, Strategic Goal 3.2, Strategic Goal 3.3, Strategic Goal 4.1, Strategic Goal 4.2, Strategic Goal 5.1, Strategic Goal 5.2, Strategic Goal 6.2,

Institutional Learning Outcomes: Communication:, Critical Thinking:, Global Awareness:, Personal Actions and Civic Responsibility:, Self-awareness and Interpersonal Skills:, Technological Awareness:

Ensure adequate instructional support staffing for laboratory courses

Almost all biology courses have an associated laboratory component. Without adequate staffing performed by competent, specialized instructional laboratory technicians, it is not possible to offer a complete course. For this reason we have been given support for (and should be receiving) two additional ILT positions. Both are full time positions at 1.0 FTE (Classified Staff Request 2): one for General Microbiology/Bio 210A support and the other for Anatomy and Physiology/General Biology support. With the increase in FTEF to 26.8 (with subsequent increase in most of our high-demand courses), the need for technicians with subject area expertise is critical. In addition, the many needs within a laboratory setting are technically outside of the official job description if an ILT, therefore requiring a safety/supervisory position. Consequently, we have requested this position on behalf of the entire School of Math & Natural Science.

Mapping

CA- Mesa College Strategic Directions and Goals: Strategic Goal 1.1, Strategic Goal 1.2, Strategic Goal 1.3, Strategic Goal 1.4, Strategic Goal 1.6, Strategic Goal 2.2, Strategic Goal 2.3, Strategic Goal 2.4, Strategic Goal 2.5, Strategic Goal 4.1, Strategic Goal 4.2, Strategic Goal 5.1, Strategic Goal 5.2, Strategic Goal 6.1, Strategic Goal 6.3,

Institutional Learning Outcomes: Communication:, Critical Thinking:, Global Awareness:, Personal Actions and Civic Responsibility:, Self-awareness and Interpersonal Skills:, Technological Awareness:

2016-17 - Ensure adequate contract faculty staffing for the Biology department

Marked obsolete by ANAR A BRAHMBHATT on 12/10/2018 7:38:40 pm PST

The Biology department is a very large, dynamic, and successful program. The department teaches an average of 100 sections per semester with an average FTEF of 30 and as of Spring 2016, our tenured FTEF ratio was at 34%. With the recent hiring of our new faculty members, this ratio has improved slightly but is offset by the retirement of another faculty member (Chris Dawes, occurring in December 2016) and an increase in FTEF due to the addition of new Biology sections. As an immediate need, we require the addition of two full time faculty, one in the area of general biology/natural history, and one for anatomy and physiology/organismal biology 2016-17

Mapping

No Mapping

Biology Program Goal 2018-2019: Student Success and Retention

To change advisories of the college-prepared level math and English to actual prerequisites

Marked obsolete by ANNE BETH GELLER on 11/22/2019 3:11:44 pm PST

One of the ways that we have proposed to increase student success rate, is by changing our current advisories for Math and English in both lower and upper level Biology to actual prerequisites. This proposal for the change is supported by data completed in our Biology 107 course that has shown that students who actually complete/meet the

advisories are almost twice as likely to be successful in this course. Students with the advisories were on the average about 70% successful and the students without were about 43% successful. Students with the advisories had an average withdrawal rate of about 15% whereas students without the advisories had a withdrawal rate of about 26%.

Mapping

CA- Mesa College Strategic Directions and Goals: Strategic Goal 1.1, Strategic Goal 1.2, Strategic Goal 1.3, Strategic Goal 1.4, Strategic Goal 2.3, Strategic Goal 2.4, Strategic Goal 4.1, Strategic Goal 4.2,

Institutional Learning Outcomes: Communication:, Critical Thinking:, Global Awareness:, Personal Actions and Civic Responsibility:, Self-awareness and Interpersonal Skills:, Technological Awareness:

2019-20 - Maintain appropriate technology and innovation in biology courses

In order to support student success and retention and prepare biology and allied health track students for successful transfer into competitive programs, it is imperative that our labs include the appropriate technology and our instructors be supported in their creation of innovative laboratory exercises.

Mapping

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Institutional Learning Outcomes 2016/17: Communication, Critical Thinking, Global Consciousness, Information Literacy, Professional & Ethical Behavior

2019-20 Increase student preparedness in biology courses

Biology students are entering our classes underprepared and therefore not reaching targeted levels of success. Additionally, we are also seeing an equity gap for Latinx and African American students. This is most apparent in rigorous courses with no prerequisites (Biol 107 and 160) and in our first courses in our Biology major sequence (Biol 210A) and allied health track sequence (Biol 230).

Mapping

CA- Mesa College Strategic Directions and Goals: Strategic Goal 1.1, Strategic Goal 1.2, Strategic Goal 1.3, Strategic Goal 1.4, Strategic Goal 1.5, Strategic Goal 1.6, Strategic Goal 2.1, Strategic Goal 2.2, Strategic Goal 3.1, Strategic Goal 4.1, Strategic Goal 4.2, Strategic Goal 5.1,

Institutional Learning Outcomes 2016/17: Communication, Critical Thinking, Information Literacy, Professional & Ethical Behavior

Biology Program Goal 2018-2019: Yearly Budget

Restore and Increase supply budget

Marked obsolete by ANNE BETH GELLER on 11/30/2019 5:23:44 pm PST

Our supply budget was arbitrarily cut by \$20,000 over 7 years ago and has never been fully restored. It currently is at \$69,400, which is what it was over 14 years ago. Even with cost-cutting procedures, we spent over \$100,000 in the last fiscal year. Since moving into the new building, we have increased our course offerings. The laboratory supply needs for these additional course sections is around \$25,000+. Furthermore, we have added additional microbiology sections bringing the total # of sections to 9 in the spring 2019 semester, which requires an additional \$3600+ for laboratory supplies. Typically, our funds are depleted by mid December of each year and we are forced to operate in the red.

Mapping

CA- Mesa College Strategic Directions and Goals: Strategic Goal 1.1, Strategic Goal 1.2, Strategic Goal 1.3, Strategic Goal 1.4, Strategic Goal 1.6, Strategic Goal 2.1, Strategic Goal 2.2, Strategic Goal 2.3, Strategic Goal 2.4, Strategic Goal 2.5, Strategic Goal 3.1, Strategic Goal 3.2, Strategic Goal 3.3, Strategic Goal 4.1, Strategic Goal 4.2, Strategic Goal 5.2, Strategic Goal 6.1,

Institutional Learning Outcomes: Communication:, Critical Thinking:, Global Awareness:, Personal Actions and Civic Responsibility:, Self-awareness and Interpersonal Skills:, Technological Awareness:

2019-20 Ensure appropriate department budget to include funding for ongoing maintenance of existing laboratory equipment and safety needs

To ensure appropriate levels of safety in biology labs and continue to provide instructional excellence in our current and future laboratory courses, we require increases in funding. Lab equipment in many courses is in need of repair or replacement, including autoclaves for microbiology, microscopes in all labs, and laptop computers in physiology labs. The district is no longer funding service contracts for these types of laboratory equipment and therefore they will continue to break down and need to be replaced more frequently. Currently, we do not have enough working autoclaves to run our microbiology sections and to handle biological wastes generated from our other courses. This not only impacts the microbiology curriculum, but also safety within the department. Computers in physiology labs are old and failing, and need to be replaced. Microscopes require yearly maintenance in order to work. Without service contracts, these will continue to break and will need to be replaced.

Mapping

CA- Mesa College Strategic Directions and Goals: Strategic Goal 1.1, Strategic Goal 1.2, Strategic Goal 1.3, Strategic Goal 1.4, Strategic Goal 1.6, Strategic Goal 3.2, Strategic Goal 4.1, Strategic Goal 4.2, Strategic Goal 6.1, Strategic Goal 6.2,

Institutional Learning Outcomes 2016/17: Communication, Critical Thinking, Information Literacy, Professional & Ethical Behavior

ACTION PLANS FOR GOALS (REQUIRED)**Actions****Biology Program Goal 2018-2019: Department Faculty and Staff Hiring**

Goal

Goal: Ensure adequate contract faculty staffing for the Biology department

The Biology department is a very large, dynamic, and successful program. The department teaches an average of 90 sections per semester with an average FTEF of 26.8 and as of Spring 2018, our tenured FTEF ratio is at 33%, down from 38% in Spring 2014. With the recent hiring of three new faculty members, this ratio should have improved slightly but is now offset by the retirement of another faculty member, non-renewal of contract for another faculty member, and the increase in FTEF due to the addition of new Biology sections. We will receive another new hire in the fall 2019 semester, but still require at least the addition of one full time faculty in the area of microbiology/general biology, and potentially one more for anatomy and physiology/general biology. This is to keep up with the demands of classroom and non-classroom assignments required of our faculty along with increase in sections.

Action: Request for Contract Faculty Positions

Describe the actions needed to achieve this objective:	Describe the need for two new contract faculty positions: one within the 2019-2020 Program Review document (microbiology) and one within the 2020-2021 review (anatomy/physiology) and complete two separate Request for Faculty Position forms within the appropriate timeframe.
Who will be responsible for overseeing the completion of this objective:	Anne Geller and Anar Brahmhatt
Provide a timeline for the actions:	Program Review and Faculty Position request for microbiology/general biology will be completed by February 3, 2020 (the deadline for submission). Program Review and Faculty Position request for anatomy/physiology will be completed by the deadline for submission for the 2020-2021 Program Review cycle.
Describe the assessment plan you will use to know if the objective was achieved and effective:	The objective will be achieved and considered effective if the department requests are approved by the Faculty Hiring Priorities Committee and also at the District level.
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	The resources needed to achieve this objective include: 1) funding for these salaried positions, 2) individuals to serve on hiring committees for each position (The President, VP of Instruction, Contract faculty, Classified Staff and one EEO Representative), as well as 3) the involvement of Human Resources and various other administrative divisions

Goal: Ensure adequate instructional support staffing for laboratory courses

Almost all biology courses have an associated laboratory component. Without adequate staffing performed by competent, specialized instructional laboratory technicians, it is not possible to offer a complete course. For this reason we have been given support for (and should be receiving) two additional ILT positions. Both are full time positions at 1.0 FTE (Classified Staff Request 2): one for General Microbiology/Bio 210A support and the other for Anatomy and Physiology/General Biology support. With the increase in FTEF to 26.8 (with subsequent increase in most of our high-demand courses), the need for technicians with subject area expertise is critical. In addition, the many needs within a laboratory setting are technically outside of the official job description if an ILT, therefore requiring a safety/supervisory position. Consequently, we have requested this position on behalf of the entire School of Math & Natural Science.

Action: Request for Classified Staff ILT Positions

Describe the actions needed to achieve this objective:	We have received support for the two biology department ILTs, and are in the middle of the formal search for the second position (microbiology/Bio 210A); the first position (Anatomy/Physiology/General Biology) search was successful. Our hope is that this goal will be completed by the start of the spring 2020 semester. In the event that it is not, we include it here in Program Review as an important goal. For the safety/supervisory ILT position, the action plan is to describe the need for a classified position (ILT) within the 2019-2020 Program Review document and
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	complete the Classified Staff Position Request form. This request for the supervisory position is a joint request on behalf of the entire School of Math and Natural Sciences.
Who will be responsible for overseeing the completion of this objective:	The Biology ILT requests have already been submitted and we are in the middle of the search for the 2nd position. Dr. Susan Topham has spearheaded the joint request for the safety/ supervisory ILT position.
Provide a timeline for the actions:	Program Review and Classified Staff Position request will be completed by February 3, 2020 (the deadline for submission).
Describe the assessment plan you will use to know if the objective was achieved and effective:	The objective will be achieved and considered effective if the department request is approved by the Classified Hiring Priorities Committee and also at the District level.
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	The resources needed to achieve this objective include: 1) funding for these salaried positions, 2) individuals to serve on a hiring committee for this position (Administrators (as required), Contract faculty, Classified Staff and one EEO Representative), as well as 3) the involvement of Human Resources and various other administrative divisions

Goal: 2016-17 - Ensure adequate contract faculty staffing for the Biology department

Marked obsolete by ANAR A BRAHMBHATT on 12/10/2018 10:38:40 pm PST

The Biology department is a very large, dynamic, and successful program. The department teaches an average of 100 sections per semester with an average FTEF of 30 and as of Spring 2016, our tenured FTEF ratio was at 34%. With the recent hiring of our new faculty members, this ratio has improved slightly but is offset by the retirement of another faculty member (Chris Dawes, occurring in December 2016) and an increase in FTEF due to the addition of new Biology sections. As an immediate need, we require the addition of two full time faculty, one in the area of general biology/natural history, and one for anatomy and physiology/organismal biology 2016-17

No actions specified

Biology Program Goal 2018-2019: Student Success and Retention

Goal

Goal: To change advisories of the college-prepared level math and English to actual prerequisites *Marked obsolete by ANNE BETH GELLER on 11/22/2019 6:11:44 pm PST*

One of the ways that we have proposed to increase student success rate, is by changing our current advisories for Math and English in both lower and upper level Biology to actual prerequisites. This proposal for the change is supported by data completed in our Biology 107 course that has shown that students who actually complete/meet the advisories are almost twice as likely to be successful in this course. Students with the advisories were on the average about 70% successful and the students without were about 43% successful. Students with the advisories had an average withdrawal rate of about 15% whereas students without the advisories had a withdrawal rate of about 26%.

Action: Add college-prepared level math and English prerequisites to Bio 107 and 210A

Describe the actions needed to achieve this objective:

To go through the Curriculum Review process by communicating with Toni Parsons (Curriculum Review Committee) regarding the appropriate steps and Bri Hays to obtain the appropriate data necessary for this request. We would also need to seek approval from both City and Miramar Colleges before proceeding, as we teach the same courses.

Who will be responsible for overseeing the completion of this objective:

Anar Brahmhatt, Jennifer Carmichael, and Mesa College Department Chairs

Provide a timeline for the actions:

Data is currently available for Bio 107--we had anticipate 2-3 years to complete this action during the 2014/2015 cycle. This was previously tasked to Janice Clymer who took early retirement. The addition of prerequisites to Bio 210A were considered a long-term goal requiring 3-5 years. Due to reshuffling of duties and inadequate help to complete contact faculty duties, this goal, while still extremely important to our program, has taken additional time. We anticipate another 3-5 years to complete this goal, provided that our current contract faculty are given the time to take on this task.

Describe the assessment plan you will use to know if the objective was achieved and effective:

The objective will be achieved and considered effective if the department request are approved and we are informed by the Curriculum Review Committee

List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):

Resources needed to achieve this objective include 1) Biology department faculty, 2) Institutional Research (Campus Based Researcher Bri Hays), and 3) the Curriculum Review Committee.

Goal: Maintain appropriate technology and innovation in biology courses

Action: Maintain appropriate technology and innovation in biology courses

Describe the actions needed to achieve this objective:

The most pressing need to maintain appropriate technology and innovation involves requesting funds to obtain service contracts or regular servicing for the student microscopes and autoclaves in our department. In lieu of service contracts, BARC requests to purchase new microscopes and autoclaves will need to be made as both of these items are essential to our biology lab courses. The same holds true for laptops in our lab courses and accompanying software. As new innovations in biology arise, we will need to re-evaluate this goal and our action plan.

Who will be responsible for overseeing the completion of this objective:

Jennifer Carmichael and Todd White (department chairs) and various contract faculty involved in specific courses in need.

Provide a timeline for the actions:

Without functional autoclaves, we are unable to run the current 10 sections of microbiology labs, as well as certain lab activities in other biology courses. We hope to obtain funds for service or new autoclaves within the 2019-2020 year, or within the 2020-2021 year at the latest. In the absence of these funds, we will have to reduce the number of sections offered (or not offer this course if both autoclaves are nonfunctioning). A BARC request will be made this cycle for the laptops with the intent to purchase within the 2020-2021 school year. We are currently looking for service possibilities for the microscopes, but intend to request funds during this program review cycle (2019-2020)

Describe the assessment plan you will use to know if the objective was achieved and effective:

The objective will be achieved and considered effective if the department request is approved by the BARC Committee and also at the District level.

List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):

The resources needed to achieve this objective include funding for service contracts, regular maintenance, or approval by the BARC Committee for purchase of new equipment/software

Goal: Increase student preparedness in biology courses

Biology students are entering our classes underprepared and therefore not reaching targeted levels of success. Additionally, we are also seeing an equity gap for Latinx and African American students. This is most apparent in rigorous courses with no prerequisites (Biol 107 and 160) and in our first courses in our Biology major sequence (Biol 210A) and allied health track sequence (Biol 230).

Action: Increase student preparedness in biology classes

Describe the actions needed to achieve this objective:

- Provide opportunities for faculty professional development focusing on pedagogical strategies to help improve student's study skills, reading and classroom note-taking,
- Increase number of classroom tutors (CTs) in classes with historically lower

	<p>success numbers (Biol 107, 160, 210A)</p> <ul style="list-style-type: none"> - Review data regarding student success and equity gaps and make appropriate modifications to curriculum and labs as necessary - Provide study skills workshops for biology and STEM classes especially early in the semester -Evaluate possibility of creating discussion sections within curriculum to offer additional opportunities for student preparation and success.
Who will be responsible for overseeing the completion of this objective:	Department chairs (Jennifer Carmichael) and various contract faculty involved in these classes (including Anar Brahmhatt, Anne Geller, Paige Connell (Hu), Michael Brewer)
Provide a timeline for the actions:	This is a long term goal (3-5 years) which will begin this term with: - better communication with the tutoring/STEM center and cooperative advertising for more tutors - attendance at school meetings and professional learning opportunities focusing on increasing student success and decreasing equity gaps - discussions with chemistry faculty who were successful in getting a one unit discussion/tutoring course through curriculum development.
Describe the assessment plan you will use to know if the objective was achieved and effective:	We will know if the objective is achieved by seeing improved student success levels and decreased equity gaps in the above courses.
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	<p>Resources needed include:</p> <p>Time and funding for faculty</p> <ul style="list-style-type: none"> - to attend professional learning opportunities both on and off campus - to create, and offer workshops to students <p>Advertising through the biology department, STEM center and tutoring center to recruit more STEM center and embedded CTs</p> <p>Information from the chemistry department, curriculum review committee and communication with colleagues at Miramar & City regarding the development of new discussion section courses (perhaps by activating Biol 48 - Pre Biology and Study Skills).</p>

Biology Program Goal 2018-2019: Yearly Budget

Goal

Goal: Restore and Increase supply budget

Our supply budget was arbitrarily cut by \$20,000 over 7 years ago and has never been fully restored. It currently is at \$69,400, which is what it was over 14 years ago. Even with cost-cutting procedures, we spent over \$100,000 in the last fiscal year. Since moving into the new building, we have increased our course offerings. The laboratory supply needs for these additional course sections is around \$25,000+. Furthermore, we have added additional microbiology sections bringing the total # of sections to 9 in

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the spring 2019 semester, which requires an additional \$3600+ for laboratory supplies. Typically, our funds are depleted by mid December of each year and we are forced to operate in the red.

Action: Objective 2. Restore supply funds that were removed from the department budget in 2012

Describe the actions needed to achieve this objective:	Receive annual funding in the amount provided prior to the arbitrary cut. Verify the funding has been received by reviewing the budget online.
Who will be responsible for overseeing the completion of this objective:	Department Chair (Paul Sykes) and Dean of Math and Sciences (Susan Topham)
Provide a timeline for the actions:	Fiscal year 2019/2020, which starts July 1, 2019.
Describe the assessment plan you will use to know if the objective was achieved and effective:	The department chair and the dean will review the annual budget to determine whether it has been increased by the amount requested. The objective will be achieved and considered effective if the department requests are approved by BARC and administrative divisions.
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	\$20,000 annually

Supporting Attachments:

- [Goal3objective2.pdf link opens in new window \(Adobe Acrobat Document\)](#)
- BARC form for Goal 3 objective 1
- [SDCCD Site Safety Plan \(Adobe Acrobat Document\)](#)
- SDCCD Site Safety Plan

Goal: 2019-20 Ensure appropriate department budget to include funding for ongoing maintenance of existing laboratory equipment and safety needs

To ensure appropriate levels of safety in biology labs and continue to provide instructional excellence in our current and future laboratory courses, we require increases in funding. Lab equipment in many courses is in need of repair or replacement, including autoclaves for microbiology, microscopes in all labs, and laptop computers in physiology labs. The district is no longer funding service contracts for these types of laboratory equipment and therefore they will continue to break down and need to be replaced more frequently. Currently, we do not have enough working autoclaves to run our microbiology sections and to handle biological wastes generated from our other courses. This not only impacts the microbiology curriculum, but also safety within the department. Computers in physiology labs are old and

failing, and need to be replaced. Microscopes require yearly maintenance in order to work. Without service contracts, these will continue to break and will need to be replaced.

Action: Increase budget to include funding for ongoing lab maintenance and safety needs

Describe the actions needed to achieve this objective:	Calculate the additional funding needed to maintain laboratory equipment in working order and ensure necessary student and faculty safety. Submit BARC requests for new equipment if maintenance contracts are not supported.
Who will be responsible for overseeing the completion of this objective:	Department chairs (Jennifer Carmichael/Todd White)
Provide a timeline for the actions:	BARC requests for autoclaves, laptops and microscopes submitted in 2019-2020 PR cycle
Describe the assessment plan you will use to know if the objective was achieved and effective:	Objective will be achieved with receipt of funding
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	See BARC requests for costs

GOAL STATUS REPORT (REQUIRED)

Action Statuses

Biology Program Goal 2018-2019: Department Faculty and Staff Hiring

Goal

Goal: Ensure adequate contract faculty staffing for the Biology department

The Biology department is a very large, dynamic, and successful program. The department teaches an average of 90 sections per semester with an average FTEF of 26.8 and as of Spring 2018, our tenured FTEF ratio is at 33%, down from 38% in Spring 2014. With the recent hiring of three new faculty members, this ratio should have improved slightly but is now offset by the retirement of another faculty member, non-renewal of contract for another faculty member, and the increase in FTEF due to the addition of new Biology sections. We will receive another new hire in the fall 2019 semester, but still require at least the addition of one full time faculty in the area of microbiology/general biology, and potentially one more for anatomy and physiology/general biology. This is to keep up with the demands of classroom and non-classroom assignments required of our faculty along with increase in sections.

Action: Request for Contract Faculty Positions

Describe the actions	Describe the need for two new contract faculty positions: one within the 2019-2020
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needed to achieve this objective:	Program Review document (microbiology) and one within the 2020-2021 review (anatomy/physiology) and complete two separate Request for Faculty Position forms within the appropriate timeframe.
Who will be responsible for overseeing the completion of this objective:	Anne Geller and Anar Brahmhatt
Provide a timeline for the actions:	Program Review and Faculty Position request for microbiology/general biology will be completed by February 3, 2020 (the deadline for submission). Program Review and Faculty Position request for anatomy/physiology will be completed by the deadline for submission for the 2020-2021 Program Review cycle.
Describe the assessment plan you will use to know if the objective was achieved and effective:	The objective will be achieved and considered effective if the department requests are approved by the Faculty Hiring Priorities Committee and also at the District level.
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	The resources needed to achieve this objective include: 1) funding for these salaried positions, 2) individuals to serve on hiring committees for each position (The President, VP of Instruction, Contract faculty, Classified Staff and one EEO Representative), as well as 3) the involvement of Human Resources and various other administrative divisions

Status for Request for Contract Faculty Positions

Current Status:	In Progress
If the Current Status was marked Completed, what was the impact of the completed objective on your program:	
If the Current Status was not marked Completed, what are the implications and next steps:	We have just completed the search for a new contract faculty for Anatomy and Physiology. This individual is expected to start with us in the Spring 2020 semester. However, we did not receive priority to go after one full time faculty in microbiology/general biology. We will submit a request for this position again in this cycle as it is still a high priority. We will submit a request for an additional anatomy and physiology/general biology contract position during the next cycle. While this position is also a priority, we realize that we will be unable to move forward at this time, especially in lieu of the current hiring freeze, but will continue to request this critical position.

Goal: Ensure adequate instructional support staffing for laboratory courses

Almost all biology courses have an associated laboratory component. Without adequate staffing performed by competent, specialized instructional laboratory technicians, it is not possible to offer a complete course. For this

reason we have been given support for (and should be receiving) two additional ILT positions. Both are full time positions at 1.0 FTE (Classified Staff Request 2): one for General Microbiology/Bio 210A support and the other for Anatomy and Physiology/General Biology support. With the increase in FTEF to 26.8 (with subsequent increase in most of our high-demand courses), the need for technicians with subject area expertise is critical. In addition, the many needs within a laboratory setting are technically outside of the official job description if an ILT, therefore requiring a safety/supervisory position. Consequently, we have requested this position on behalf of the entire School of Math & Natural Science.

Action: Request for Classified Staff ILT Positions

Describe the actions needed to achieve this objective:	We have received support for the two biology department ILTs, and are in the middle of the formal search for the second position (microbiology/Bio 210A); the first position (Anatomy/Physiology/General Biology) search was successful. Our hope is that this goal will be completed by the start of the spring 2020 semester. In the event that it is not, we include it here in Program Review as an important goal. For the safety/supervisory ILT position, the action plan is to describe the need for a classified position (ILT) within the 2019-2020 Program Review document and complete the Classified Staff Position Request form. This request for the supervisory position is a joint request on behalf of the entire School of Math and Natural Sciences.
Who will be responsible for overseeing the completion of this objective:	The Biology ILT requests have already been submitted and we are in the middle of the search for the 2nd position. Dr. Susan Topham has spearheaded the joint request for the safety/ supervisory ILT position.
Provide a timeline for the actions:	Program Review and Classified Staff Position request will be completed by February 3, 2020 (the deadline for submission).
Describe the assessment plan you will use to know if the objective was achieved and effective:	The objective will be achieved and considered effective if the department request is approved by the Classified Hiring Priorities Committee and also at the District level.
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	The resources needed to achieve this objective include: 1) funding for these salaried positions, 2) individuals to serve on a hiring committee for this position (Administrators (as required), Contract faculty, Classified Staff and one EEO Representative), as well as 3) the involvement of Human Resources and various other administrative divisions

Status for Request for Classified Staff ILT Positions

Current Status: In Progress

If the Current Status was marked Completed, what was the impact of the completed objective on your program:

If the Current Status was not marked Completed, what are the implications and next steps:

We had received support for the Anatomy and Physiology/General Biology ILT and General Microbiology/Bio 210A ILT positions. The first position led to a successful hiring, however, the 2nd position (Microbiology/Bio 210A ILT) led to the hiring of an individual that could not adequately carry out the duties of this position. We were fortunate enough to receive support to search for this position again, and are currently in the middle of this search. Should we be successful, this Microbiology/210A ILT would start some time in the Spring 2020 semester. We did not receive support/priority to hire a School of Math & Natural Science safety/Supervisor ILT, and plan to request this position again during this cycle.

Goal: 2016-17 - Ensure adequate contract faculty staffing for the Biology department

Marked obsolete by ANAR A BRAHMBHATT on 12/10/2018 10:38:40 pm PST

The Biology department is a very large, dynamic, and successful program. The department teaches an average of 100 sections per semester with an average FTEF of 30 and as of Spring 2016, our tenured FTEF ratio was at 34%. With the recent hiring of our new faculty members, this ratio has improved slightly but is offset by the retirement of another faculty member (Chris Dawes, occurring in December 2016) and an increase in FTEF due to the addition of new Biology sections. As an immediate need, we require the addition of two full time faculty, one in the area of general biology/natural history, and one for anatomy and physiology/organismal biology 2016-17

No actions specified

Biology Program Goal 2018-2019: Student Success and Retention

Goal

Goal: To change advisories of the college-prepared level math and English to actual prerequisites

Marked obsolete by ANNE BETH GELLER on 11/22/2019 6:11:44 pm PST

One of the ways that we have proposed to increase student success rate, is by changing our current advisories for Math and English in both lower and upper level Biology to actual prerequisites. This proposal for the change is supported by data completed in our Biology 107 course that has shown that students who actually complete/meet the advisories are almost twice as likely to be successful in this course. Students with the advisories were on the average about 70% successful and the students without were about 43% successful. Students with the advisories had an average withdrawal rate of about 15% whereas students without the advisories had a withdrawal rate of

about 26%.

Action: Add college-prepared level math and English prerequisites to Bio 107 and 210A

Describe the actions needed to achieve this objective:

To go through the Curriculum Review process by communicating with Toni Parsons (Curriculum Review Committee) regarding the appropriate steps and Bri Hays to obtain the appropriate data necessary for this request. We would also need to seek approval from both City and Miramar Colleges before proceeding, as we teach the same courses.

Who will be responsible for overseeing the completion of this objective:

Anar Brahmabhatt, Jennifer Carmichael, and Mesa College Department Chairs

Provide a timeline for the actions:

Data is currently available for Bio 107--we had anticipate 2-3 years to complete this action during the 2014/2015 cycle. This was previously tasked to Janice Clymer who took early retirement. The addition of prerequisites to Bio 210A were considered a long-term goal requiring 3-5 years. Due to reshuffling of duties and inadequate help to complete contact faculty duties, this goal, while still extremely important to our program, has taken additional time. We anticipate another 3-5 years to complete this goal, provided that our current contract faculty are given the time to take on this task.

Describe the assessment plan you will use to know if the objective was achieved and effective:

The objective will be achieved and considered effective if the department request are approved and we are informed by the Curriculum Review Committee

List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):

Resources needed to achieve this objective include 1) Biology department faculty, 2) Institutional Research (Campus Based Researcher Bri Hays), and 3) the Curriculum Review Committee.

Status for Add college-prepared level math and English prerequisites to Bio 107 and 210A

Current Status:

Not Implemented

If the Current Status was marked Completed, what was the impact of the completed objective on your program:

If the Current Status was not marked Completed, what are the implications and next steps:

We recognize the difficulty in meeting this goal due to articulation and overall number of units. This impacts our students' ability to transfer in a timely fashion. We still believe and have seen data to support that this would be beneficial for student success, however we believe that shifting the focus to other forms of student support are more feasible at this time.

Goal: Maintain appropriate technology and innovation in biology courses

Action: Maintain appropriate technology and innovation in biology courses

Describe the actions needed to achieve this objective:

The most pressing need to maintain appropriate technology and innovation involves requesting funds to obtain service contracts or regular servicing for the student microscopes and autoclaves in our department. In lieu of service contracts, BARC requests to purchase new microscopes and autoclaves will need to be made as both of these items are essential to our biology lab courses. The same holds true for laptops in our lab courses and accompanying software. As new innovations in biology arise, we will need to re-evaluate this goal and our action plan.

Who will be responsible for overseeing the completion of this objective:

Jennifer Carmichael and Todd White (department chairs) and various contract faculty involved in specific courses in need.

Provide a timeline for the actions:

Without functional autoclaves, we are unable to run the current 10 sections of microbiology labs, as well as certain lab activities in other biology courses. We hope to obtain funds for service or new autoclaves within the 2019-2020 year, or within the 2020-2021 year at the latest. In the absence of these funds, we will have to reduce the number of sections offered (or not offer this course if both autoclaves are nonfunctioning). A BARC request will be made this cycle for the laptops with the intent to purchase within the 2020-2021 school year. We are currently looking for service possibilities for the microscopes, but intend to request funds during this program review cycle (2019-2020)

Describe the assessment plan you will use to know if the objective was achieved and effective:

The objective will be achieved and considered effective if the department request is approved by the BARC Committee and also at the District level.

List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):

The resources needed to achieve this objective include funding for service contracts, regular maintenance, or approval by the BARC Committee for purchase of new equipment/software

Status for Maintain appropriate technology and innovation in biology courses

Current Status:

In Progress

If the Current Status was marked Completed, what was the impact of the completed objective on your program:

If the Current Status was not marked Completed,

BARC requests for new autoclave(s), laptop computers for physiology lab and microscopes will be included in this PR. Additionally, we will continue to press

what are the implications and next steps:

for service contracts for the autoclaves and microscopes as we believe that this is a pressing need and servicing the equipment is a better use of funds than purchasing new ones.

Goal: Increase student preparedness in biology courses

Biology students are entering our classes underprepared and therefore not reaching targeted levels of success. Additionally, we are also seeing an equity gap for Latinx and African American students. This is most apparent in rigorous courses with no prerequisites (Biol 107 and 160) and in our first courses in our Biology major sequence (Biol 210A) and allied health track sequence (Biol 230).

Action: Increase student preparedness in biology classes**Describe the actions needed to achieve this objective:**

- Provide opportunities for faculty professional development focusing on pedagogical strategies to help improve student's study skills, reading and classroom note-taking,
- Increase number of classroom tutors (CTs) in classes with historically lower success numbers (Biol 107, 160, 210A)
- Review data regarding student success and equity gaps and make appropriate modifications to curriculum and labs as necessary
- Provide study skills workshops for biology and STEM classes especially early in the semester
- Evaluate possibility of creating discussion sections within curriculum to offer additional opportunities for student preparation and success.

Who will be responsible for overseeing the completion of this objective:

Department chairs (Jennifer Carmichael) and various contract faculty involved in these classes (including Anar Brahmhatt, Anne Geller, Paige Connell (Hu), Michael Brewer)

Provide a timeline for the actions:

This is a long term goal (3-5 years) which will begin this term with: - better communication with the tutoring/STEM center and cooperative advertising for more tutors - attendance at school meetings and professional learning opportunities focusing on increasing student success and decreasing equity gaps - discussions with chemistry faculty who were successful in getting a one unit discussion/tutoring course through curriculum development.

Describe the assessment plan you will use to know if the objective was achieved and effective:

We will know if the objective is achieved by seeing improved student success levels and decreased equity gaps in the above courses.

List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):

Resources needed include:
 Time and funding for faculty
 - to attend professional learning opportunities both on and off campus - to create, and offer workshops to students
 Advertising through the biology department, STEM center and tutoring center to recruit more STEM center and embedded CTs
 Information from the chemistry department, curriculum review committee and communication with colleagues at Miramar & City regarding the development of new discussion section courses (perhaps by activating Biol 48 - Pre Biology and Study Skills).

Status for Increase student preparedness in biology classes

Current Status: In Progress

If the Current Status was marked Completed, what was the impact of the completed objective on your program:

If the Current Status was not marked Completed, what are the implications and next steps:

As this is a new goal (2019-20) and there are multiple action steps to accomplish this goal, the initial steps will be to discuss specific ideas to increase the number of STEM tutors and CTs; and to examine the feasibility of creating a discussion/tutoring section for the biology 210A classes (Biol 210A X?)

Biology Program Goal 2018-2019: Yearly Budget

Goal

Goal: Restore and Increase supply budget

Marked obsolete by ANNE BETH GELLER on 11/30/2019 8:23:44 pm PST

Our supply budget was arbitrarily cut by \$20,000 over 7 years ago and has never been fully restored. It currently is at \$69,400, which is what it was over 14 years ago. Even with cost-cutting procedures, we spent over \$100,000 in the last fiscal year. Since moving into the new building, we have increased our course offerings. The laboratory supply needs for these additional course sections is around \$25,000+. Furthermore, we have added additional microbiology sections bringing the total # of sections to 9 in the spring 2019 semester, which requires an additional \$3600+ for laboratory supplies. Typically, our funds are depleted by mid December of each year and we are forced to operate in the red.

Action: Objective 2. Restore supply funds that were removed from the department budget in 2012

Describe the actions needed to achieve this objective:

Receive annual funding in the amount provided prior to the arbitrary cut. Verify the funding has been received by reviewing the budget online.

Who will be responsible for overseeing the completion of this objective:

Department Chair (Paul Sykes) and Dean of Math and Sciences (Susan Topham)

Provide a timeline for the actions:

Fiscal year 2019/2020, which starts July 1, 2019.

Describe the assessment

The department chair and the dean will review the annual budget to determine

plan you will use to know if the objective was achieved and effective:

whether it has been increased by the amount requested. The objective will be achieved and considered effective if the department requests are approved by BARC and administrative divisions.

List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):

\$20,000 annually

Supporting Attachments:

[Goal3objective2.pdf link opens in new window \(Adobe Acrobat Document\)](#)

BARC form for Goal 3 objective 1

[SDCCD Site Safety Plan \(Adobe Acrobat Document\)](#)

SDCCD Site Safety Plan

Status for Objective 2. Restore supply funds that were removed from the department budget in 2012

Current Status:

Completed

If the Current Status was marked Completed, what was the impact of the completed objective on your program:

We were successful in increasing our budget and have been able to reasonably conduct our courses at the level that is conducive to student success. However, we plan to include a new goal that addresses the need for funds to support safety, technology, and innovation (all towards ensuring student success).

If the Current Status was not marked Completed, what are the implications and next steps:

Goal: 2019-20 Ensure appropriate department budget to include funding for ongoing maintenance of existing laboratory equipment and safety needs

To ensure appropriate levels of safety in biology labs and continue to provide instructional excellence in our current and future laboratory courses, we require increases in funding. Lab equipment in many courses is in need of repair or replacement, including autoclaves for microbiology, microscopes in all labs, and laptop computers in physiology labs. The district is no longer funding service contracts for these types of laboratory equipment and therefore they will continue to break down and need to be replaced more frequently. Currently, we do not have enough working autoclaves to run our microbiology sections and to handle biological wastes generated from our other courses. This not only impacts the microbiology curriculum, but also safety within the department. Computers in physiology labs are old and failing, and need to be replaced. Microscopes require yearly maintenance in order to work. Without service contracts,

these will continue to break and will need to be replaced.

Action: Increase budget to include funding for ongoing lab maintenance and safety needs

Describe the actions needed to achieve this objective:	Calculate the additional funding needed to maintain laboratory equipment in working order and ensure necessary student and faculty safety. Submit BARC requests for new equipment if maintenance contracts are not supported.
Who will be responsible for overseeing the completion of this objective:	Department chairs (Jennifer Carmichael/Todd White)
Provide a timeline for the actions:	BARC requests for autoclaves, laptops and microscopes submitted in 2019-2020 PR cycle
Describe the assessment plan you will use to know if the objective was achieved and effective:	Objective will be achieved with receipt of funding
List resources needed to achieve this objective and associated costs (Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	See BARC requests for costs

Status for Increase budget to include funding for ongoing lab maintenance and safety needs

Current Status:	In Progress
If the Current Status was marked Completed, what was the impact of the completed objective on your program:	
If the Current Status was not marked Completed, what are the implications and next steps:	Submit BARC requests

Request Forms

CLASSIFIED POSITION, BARC AND FACULTY POSITION REQUEST

Reviewers

LIAISON'S REVIEW

Form: Instructional Program Liaison's Review 2019/20 UPDATE

MANAGER'S REVIEW

Form: Instructional Program Manager's Review 2019/20 UPDATE

Appendix

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- A. **2019/20 Program Review Outcomes and Assessment Section** (Form)
 - B. **2019/20 Program Review Instructional Program Analysis Section** (Form)
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Form: "2019/20 Program Review Outcomes and Assessment Section"

Created with : Taskstream

Participating Area: Biology

(REQUIRED) Program name

Biology

(REQUIRED) Are you on target with your assessment schedule?

Yes. We have a few courses that we had plans to complete assessments last cycle, but for a variety of reasons were not completed. These courses will be assessed in this cycle and we are hoping to be complete in our assessments earlier than originally scheduled.

(REQUIRED) What have your assessments revealed about your courses/programs/service area/school/division/office?

So far, all but two of our assessments have indicated that we have met or exceeded our benchmark targets for our course outcomes. Of the two courses that fell slightly below our benchmarks, the Bio 210A assessment will be repeated to consider whether the results are consistent and truly representative of this course. The instructors are aware that the topics in this first semester major's class are difficult concepts for students. Faculty are continuing to try various strategies in and outside of the classroom to improve student success and decrease equity gaps within this course. For our students, this involves dedicated time with classroom tutors (of which we have only one in a 210A section this semester), attendance at discussion sessions, exposure to biological models to help illustrate key concepts, as well as availability to modern, working equipment.

The biology 107 assessment had a wide variability of outcome success across the 28 sections, from 56% to 85% (67.49% average for all 28 sections), and part of the challenge in this course is the number of different instructors teaching it, and maintaining consistency across sections. Having hired a full time faculty whose sole teaching load is this course (Paige Connell), and with the return of Paul Sykes into this course after being department chair for many years, we are hoping to address some of these challenges.

(REQUIRED) Based on your assessments, what resource needs have you identified?

Time. Time constraints on contract faculty hinder us from being able to invest more energy in 1) mentoring/preparing tenure-track faculty as well as our adjunct faculty to be best prepared for their students and the tasks associated with this occupation, 2) student mentoring, 3) curriculum development, and 4) communication with other instructors and staff.

Increased tutoring for students, especially classroom tutors (CTs). Only two biology class sections have classroom tutors, and there are only two tutors in the STEM center for all biology classes. Faculty are doing their best to recruit and recommend students for tutoring positions, but unfortunately many of our best qualified students finish their time at Mesa and move on to transfer shortly after completing these challenging courses and therefore are unavailable to take on these positions. Additionally, the pay scale for tutors is extremely low when compared to professional tutors and if we are requiring our STEM tutors to have

high capabilities, then in order to effectively recruit and keep them they need to be paid at a more appropriate level more commensurate with their abilities.

Please provide any other comments.

No answer specified

Form: "2019/20 Program Review Instructional Program Analysis Section"

Created with : Taskstream
Participating Area: Biology

Program Name

(REQUIRED) Type your program name.

Biology

Part A: In this section, please analyze your program in terms of course success metric. Start by disaggregating the available data by race, gender, and any other parameters of interest to your program and answer the following questions.

(REQUIRED) A1. What patterns do you notice with regard to equity in course success at the program level by race/ethnicity?

You may also conduct analysis by course and/or by modality.

Equity Gap: When a group of students who share a common characteristic (e.g. race/ethnicity) have lower access and/or outcome rates than their peers. The size of the equity gap along with the size of the group determine whether that gap is significant. Larger groups should, statistically, have smaller gaps and therefore when gaps are present (even small ones) they may be significant. Smaller groups will see wider variation in outcomes, therefore gaps should be seen consistently over time and/or reviewed by looking at multiple years in aggregate to determine if they are significant.

The overall success rate in the Biology program over the past 5 years (Fall terms 2014-2018) is reasonably consistent, meeting the average benchmark of a 70% success rate. This past year (2018-2019) our overall success rate was 68%.

In this past year, we have seen the following equity gaps with regards to race/ethnicity:

A 56% success rate (-12% equity gap) among 584 African American students ; This is higher than the College equity gap (62% success, -9% equity gap)

A 61% success (-7% equity gap) among 3,803 LatinX students; This is higher than the College equity gap (66% success rate, -4% equity gap)

(REQUIRED) A2. Do these patterns persist over time (e.g., look at the last five years)? Describe if equity gaps are increasing, decreasing, or staying the same?

Looking at the past five years (each fall semester based on HSI & Equity Dashboard data), the equity gap seen in the LatinX student population seems to have improved (it had gotten worse with a 59% success rate (-9% equity gap), but over the last two years has improved to a 63% success rate (-4% equity gap), with an equity gap that more closely resembles the college values.

The equity gap among the African American student population has gotten worse these past five years. This started with a 62% success rate (-7% equity gap) in Fall 2014 and has decreased to a 52% success rate (-16% equity gap) in Fall 2018.

(REQUIRED) A3. What factors may have influenced these results? What are your most significant findings?

One of the factors that may have influenced these results is the fact that we simply are not attracting the same relative percentage of African American students into Biology as we see in the College demographics. We are slightly below the College enrollment for African American students averaging 6% (vs. 7% enrollment for the College)

Another factor that appears to influence student success relates to age. For both LatinX and African American students there is a lower success rate (higher equity gap) among the 18-24 age group:

	African American	LatinX
18-24 yrs	(-16%)	(-8%)
25-29 yrs.	(-11%)	(-4%)
30-39 yrs.	(-3%)	(0%)

Another factor that appears to influence student success relates to gender. For both LatinX and African American students there is a lower success rate (higher equity gap) among female students vs. male students:

	Female	Male
African American	(-14%)	(-10%)
LatinX	(-8%)	(-5%)

(REQUIRED) A4. How have you/might you alter practices to increase student success and reduce equity gaps?

In order to increase student success and reduce equity gaps, we are continuously trying to increase the availability of tutoring for Biology courses including STEM center tutors and the number of embedded tutors (CT = classroom tutors), especially in lower performing classes (BIOL 160, 210A). This has been a challenge as our higher performing students tend to transfer and are therefore unavailable as tutors/mentors to incoming Biology students. We are also striving to create a greater awareness of resources available to our Biology students at the STEM center. Some faculty members offer discussion sessions, an opportunity to master course concepts outside of the classroom, while other instructors encourage students to visit them at the STEM center, where they hold their office hours. This tends to facilitate more student interaction, creating a better sense of community.

(REQUIRED) A5. How does your program contribute to the College's identity of being a Hispanic Serving Institution?

As one of top majors for LatinX students, the Biology program offers a large variety of opportunities to enrich student experiences and support their educational endeavors. These include STEM support through STEM Center involvement (such as small group work with STEM Peer mentors and access to biological models with accompanying activities), Biomedical Journal Club, STEM Research Seminar offerings, course Discussion Sessions, and Women in Science club. Members of the Biology department were instrumental in obtaining the initial STEM grant and we continue to support the work of the STEM center on a regular basis. Additionally, Biology faculty are involved in the Eco Research Scholar Program (a component of the Innovation Research Lab (IRL)) as well as other IRL activities, which also support Mesa College's identity as a Hispanic Serving Institution.

(REQUIRED) A6. Have you identified resource needs? If yes, please list.

The majority of our resource needs deal with maintaining laboratory supplies and equipment in order to provide students with comparable lab experiences that they would have at a university or 4-year college level. Biology labs are very expensive to run, especially our microbiology labs, which have been recently severely impacted by failing equipment, lack of instructional support, and restriction in supply budget. In order to support each lab and the necessary activities, each section costs approximately \$4000 to run. We are simply unable to maintain these sections without adequate materials and the necessary ongoing servicing of equipment (autoclaves, microscopes, and computers). Other courses require updated equipment and models on a regular basis due to the sheer number of students, creating wear and tear on these items. Additionally, maintaining the necessary instructional laboratory support staff has been challenging as we have increased our number of sections offered but currently do not have the appropriate ILT support due to a recent termination of our most newly hired ILT. Finally, in order to properly coordinate our lab courses (specifically our Microbiology labs), we are still in need of a full-time faculty member dedicated to this course.

We intend to request the following resources to support our current needs:

1. New computers in physiology
2. Working equipment for Microbiology labs (new autoclave or appropriate service contract for existing autoclaves)
3. Microbiology/Biology 210A ILT
4. Microbiology faculty position
5. Math and Science ILT Supervisor
6. ILT for 5 sections of Bio 100 and the greenhouse

(REQUIRED) A7. Do any of your program goals address these implications or needs? If not, please develop a new goal that addresses your findings and subsequent reflection.

As reported above, we recognize that there is an equity gap and as a consequence, overall student success is lower. Our goals of maintaining appropriate technology and innovation, ensuring and maintaining appropriate levels of safety, increasing student preparedness, professional development for instructors, and ensuring appropriate instructional support and contract faculty staffing are all important to address these implications and our reported needs.

Part B: In this section, look at the area of focus you identified in last year's program review and answer the following questions.

(REQUIRED) B1. How have you developed this focus? Are you seeing any results? What are your next steps?

1. Fine-tuning adjunct evaluation process to ensure high quality education regardless of instructor:

We have developed an adjunct evaluation form and rubric to use in addition to the contract faculty appraisal form. We now require all adjunct faculty to submit student evaluations each semester (more in line with contract faculty requirements) and we conduct peer reviews on a two year cycle so that we are more able to address potential concerns in a more timely fashion. We will continue with this process which also allows us to mentor our adjuncts and support them in their professional growth.

2. Mentoring new faculty hires to support them in tenure-track process and to train them to be effective productive members of the department and campus:

We continue to mentor our new faculty hires and are pleased to see them progress in their teaching, department, and college duties.

3. To increase the amount of support services available to our students. This includes general tutors, classroom tutors, and peer mentoring. Within this focus, includes creating a culture of utilizing tutoring services, of which currently is not very strong with our students:

We are continuously trying to increase the availability of tutoring for Biology courses including STEM center tutors and the number of embedded tutors (CT = classroom tutors), especially in lower performing classes (BIOL 160, 210A). This has been a challenge as our higher performing students tend to transfer and are therefore unavailable as tutors/mentors to incoming Biology students. Faculty continue to recommend the utilization of tutoring services, especially through the STEM center, but with the limited number of biology tutors available we are not as successful as we would like. Next steps are to continue to recommend our higher achieving students for tutoring positions, and recommend their utilization with our students.

4. Revising lab curriculum for several courses, including Biol107 and Biol210A in order to create a more interactive, inquiry-based experience for our students, focus on the scientific method, resulting in overall increased scientific literacy:

Several biology faculty have been moving forward with revisions to the Biol 107 labs and we hope to have a revised lab manual published within the next year. We have had to put a hold on the revisions for the 210A labs as the faculty teaching that course are spread too thin with other pressing

commitments (department chair duties, program review writing, writing the 107 lab revisions, managing lab courses with decreased ILT support, etc.) and have not had the time to move forward with this task. We are hoping to readdress this in the coming year.