Instructional Program Review 2018/19 (Comprehensive)

Biology

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General Information (Instructional Program Review 2018/19 (Comprehensive))

2018/19 Instructional Program Review

Program Review Data and Resources

Submission Information (REQUIRED)

- Name of Lead Writer: Anar Brahmbhatt and Jennifer Carmichael
- Name of Liaison: Michelle Rodriguez
- Department Chair: Paul Sykes (lead chair) and Bill Brothers (scheduling chair)
- Name of Manager/Service Area Supervisor: Susan Topham
- Is this a CTE program? (State **Yes** or **No**): No

Faculty/staff (REQUIRED)

The Biology program

- Number of T/TT Faculty: 11
- Number of Adjunct Faculty: 31
- Number of sections taught by T/TT Faculty: 42
- Percent of FTEF taught by T/TT Faculty: 33% (down from last spring 2017 35%, high of 37% in Fall 2016 in past three years)
- Number of Pro-Rata Faculty: 0

Program Mission (REQUIRED)

The Biology Department's mission is to:

- Provide students with a basic understanding of biological principles as it relates to themselves and the world around them
- Prepare students for upper division transfer leading to careers in biological sciences
- Strive as multidisciplinary faculty to update programs to reflect the advancements in the biological sciences
- Respond to the needs of a culturally and educationally diverse student population and the community
- Enact effective and active collaboration among faculty, staff, students, and administration to ensure continued success.

Program Overview (REQUIRED)

Form: 2018/19 Comprehensive Program Review Instructional Program Overview Section (See appendix)

Curriculum (REQUIRED)

Form: 2018/19 Comprehensive Program Review Instructional Curriculum Section (See appendix)

Form: "2018/19 Comprehensive Program Review Instructional Program Overview Section"

Created with : Taskstream
Participating Area: Biology

(REQUIRED) Program name

Biology

(REQUIRED) Program strengths

Discuss strengths of the program.

Strengths of the Biology program include: (1) In demand course offerings that include general education, introductory and prerequisite courses, allied health-track courses, as well as major level courses in a diverse array of biological areas. (2) Biology faculty who are dedicated, highly trained specialists and are experts in their respective biological fields, able to effectively communicate with students to provide scientific literacy, and to prepare students for transfer, degree attainment and preparation for biological and allied health career fields. (3) Dedicated ILTs who maintain subject area expertise, historical levels of organization for course continuity, and are able to problem-solve to provide effective collaboration and support. (4) Maintenance of our new facilities which provide for highly technical, and openly collaborative environments in which to effectively educate our students.

(REQUIRED) Program challenges

Discuss challenges to the program.

While the gap has been slowly closing, we have had recent challenges in maintaining rigor and continuity in our courses, due to lack of adequate numbers of contract faculty dedicated to our courses. This has resulted in reliance on adjunct faculty, putting us further away from 75/25 ratio and challenges in finding highly qualified adjunct faculty semester after semester for many of our courses, including our highest demand allied health track courses (currently a mere 24% of the instructors in our department are contract faculty with 33% of the total FTEF assigned to tenure-track faculty). This difficulty also extends to the search for qualified, diverse contract faculty; several searches have resulted in failed pools and thus required searches to be extended an extra semester. These delays have negatively impacted our current contract faculty in terms of their time and motivation. Further, we have not been able to sufficiently evaluate all of our new and current adjuncts in a timely manner in order to provide mentorship and feedback to maintain a high level of rigor and excellence. Impacted courses resulting in our being told to increase FTEF without any additional funding, or additional laboratory support staff. Increasing workload demands for faculty and ILTs, especially department chairs, resulting in increased stress, reduced workplace satisfaction and potentially reduced productivity. Arbitrary reduction in department supply budget, coupled with woefully inadequate supply budget even with any restoration of original funds, results in inability to purchase supplies needed to run our laboratories. All of the above challenges have, and will ultimately continue to affect student success and retention. This past year, we have begun to directly address these challenges: we have added three new faculty (while we have lost two faculty as well), will be hiring two new full-time ILTs, and have been provided support to begin addressing the increase in sections in our high demand allied health courses.

(REQUIRED) External influences

Discuss external influences (Collegewide and beyond).

In addition to the previously mentioned challenges, some of which are due to external influences, other factors that influence our department/program specifically include the strong demand for healthcare workers contributing to our highly impacted allied health classes. With the offerings of summer courses over the past couple years, we have decreased some of the impact on our fall/spring course offerings and have also added more

sections in a handful of courses. However, it is a challenge for us to offer all of the courses we have been told to offer without the necessary funding, which is completely inadequate to maintain our laboratories.

We have received support from our campus (through BARC) to maintain safety in our Bio 205 (General Microbiology) labs as well as additional funding to purchase supplies and equipment to help with student success (AS Grant, Foundation Mini-Grant,HSI-STEM). We have also been able to hire new faculty and staff. This is a good start but in some cases, we have replaced individuals that we have recently lost or have merely kept up with the pace of increasing FTEF.

(REQUIRED) Areas of Focus

Describe one or more areas that your department is focusing on. You will refer to this response in the Program Analysis Section.

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

-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

- 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.

- 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.

The Following Questions are for CTE Programs ONLY.

Enter "not applicable" if your program is not CTE.

_____

(REQUIRED) Describe how the program's industry partners (including advisory committee) assist with program improvement including curriculum advice, obtaining equipment, providing internships and finding or providing other funding (limit 500 characters) (P.N. 1.b.). Please upload Advisory Committee minutes from the last year here.

Enter "not applicable" if your program is not CTE.

Not applicable

(REQUIRED) Describe how your program connects to High Schools, Universities and Continuing Education, creating career pathways in your field. Include articulation, specific projects, collaboration with teachers/professors, etc. (limit 500 characters) (P.N. 3)

Enter "not applicable" if your program is not CTE.

Not Applicable

Form: "2018/19 Comprehensive Program Review Instructional Curriculum Section"

Created with : Taskstream
Participating Area: Biology

(REQUIRED) Program Name

Biology

(REQUIRED) What degrees and certificates are offered?

The degrees offered in biology include:

1) Certificate of Performance:

- Applied Biotechnology 8 units

2) Associate of Science Degree:

a. Applied Biology Track 31* units

b. Allied Health Track 21* units

c. Transfer Track 23-24* units

3) Associate of Arts Degree:

- Liberal Arts and Sciences - Emphasis in Science Studies - Biological Sciences 18* units

* plus credits to satisfy District requirements and elective credits, as needed, to meet the 60 unit minimum.

Please note that the courses for the Certificate in Applied Biotechnology are not currently offered at Mesa, but are offered by our sister institutions in the district.

(REQUIRED) How many of each degree and certificate have been earned in the past 4 years?

In the last 5 years, 528 Biology degrees were conferred on Mesa students. In the last year that we received data (2017-18), 104 degrees in Biology (A.S.) or Biological related areas (Liberal arts and Sciences A.A.) were conferred. Approximately half of these were in the allied health degree track. This aligns well with the fact that the majority of our high demand classes, including biology 107, 230, 235 and 205, are the necessary prerequisite courses for the highly sought after allied health fields of study, including nursing. We have tried to keep up with the high demand for these classes, despite challenges with maintaining a high contract faculty-to-adjunct ratio (approximately 3:5 ratio), and 73% of our assigned FTEF are dedicated to these courses (based on the past year fall and

spring semesters). All courses necessary to complete these degrees are offered at least once and in the proper sequencing, ensuring that students are able to complete the program requirements for these degrees within a two year period. At this time, we are not making any changes to the specific degrees offered, but are waiting to hear when the ADT for biology is approved (ADT for Biology appears to be in effect for our sister campuses within the district: San Diego City College and Miramar College). At that time, we will need to reassess both the degrees and courses offered.

*Below is an itemized list of Biology Program Degrees and Certificates Awarded in the past 5 years based on the Awards Dashboard: 2012/13 to 2017/18

1) Applied Biotechnology Certificate of Performance: 0

Please note that the courses for the Certificate in Applied Biotechnology are not currently offered at Mesa, but are offered by our sister institutions in the district.

2) Associate of Science Degree:

a. Applied Biology A.S. Degree: 2 total

2012-2013: 0

2013-2014: 0

2014-2015: 0

2015-2016: 0

2016-2017: 1

2017-2018: 1

b. Allied Health A.S. Degree: 327 total

2012-2013: 44

2013-2014: 25

2014-2015: 30

2015-2016: 53

2016-2017: 44

2017-2018: 44

c. Transfer Track A.S. Degree: 110 total

2012-2013: 16

2013-2014: 13

2014-2015: 15

2015-2016: 19

2016-2017: 18

2017-2018: 29

3) Associate of Arts Degree:

Liberal Arts and Sciences - Emphasis in Science Studies - Biological Sciences A.A. Degree: 89 total

2012-2013: 21

2013-2014: 8

2014-2015: 13

2015-2016: 18

2016-2017: 20

2017-2018: 9

Note: Only degrees and certificates identified in the 2017-2018 Mesa College Catalog are included.

(REQUIRED) If you have no (or very few) degrees/certificates, what other paths do you offer? (for example, GE, transfer)

We offer the degrees/certificates described in the previous two responses.

(REQUIRED) Have you developed any new courses in the past 4 years? Please give details.

At this time, we are not making any changes to the specific degrees offered, but are waiting to hear when the ADT for biology is approved at Mesa College (the ADT for Biology appears to be in effect for our sister campuses within the district: San Diego City College and Miramar College). At that time, we will need to reassess both the degrees and courses offered.

There has been discussion about reorganizing our Bio 210 series (Bio 210A and Bio 210B for biology majors) and potentially creating a 3 course series or seeking to change both courses to 5 unit courses (both are currently 4 unit courses). This same series is taught as both a 3-part series or as two 5 unit courses in other districts within California alone. We have come see that the course content covered within this series is so immense that more time is required to adequately teach the material to our students. In the past 4 years (2013/2014-2017/2018) success rates for BIo 210A have dropped from 74% to 68%, which directly impacts the success of students moving on to Bio 210B (smaller drop from 72% to 70% within the same time frame). While success in these courses is also attributable to other factors (appropriate support of dedicated ILT, equipment, and oher resources, some of which have been awarded and others (see BARC) are still being requested), the

amount of time allotted to spend with students in this course need also be considered. At this time, no changes have been made but we have discussed creating a new course that would encompass Scientific method, Biology literacy (reading comprehension and writing skills), as well as core concepts in biology. This would serve as a solid course preparing our biology majors students for the rigor associated with our current 210A and 210B content.

(REQUIRED) Have you made other curricular changes? (for example, renumbering, sequence change, co-reqs or pre-reqs)

No other curricular changes regarding renumbering, sequenc change, co-reqs, pre-reqs or otherwise have been made in the past 4 years.

We still believe in the need to require English as a basic pre-requisite for our courses. We see that students continue to struggle in their ability to comprehend biology texts and to communicate effectively in a verbal and written format. One of our goals has been to obtain permission to add this pre-requisite to Bio 210A and Bio 107, as they are gateway courses to many of our other courses. To be honest, as contract faculty, we have been spread thin and have not been able to tackle this important task. We hope that in time, with the mentoring of our new contract faculty, we will be able to more evenly delegate these important tasks among us.

The Following Questions are for CTE Programs ONLY.

Enter "not applicable" if your program is not CTE.

_____

(REQUIRED) List any licensure and/or accreditation associated with your program.

Enter "not applicable" if your program is not CTE.

not applicable

(REQUIRED) Indicate the program TOP codes for your AA, AS, COA and COPs.

Please find TOP Code Link in the Directions.

Enter "not applicable" if your program is not CTE.

not applicable

(REQUIRED) Indicate the SOC codes and title associated with your program's AA, AS, COA and COPs.

Please find SOC Code Link in the Directions.

Enter "not applicable" if your program is not CTE

not applicable

(REQUIRED) Select the sector associated with your program.

Link to sectors list: In process of being developed

- Life Sciences/Biotech

Form: "2018/19 Comprehensive Program Review Instructional Outcomes and Assessment Section"

Created with : Taskstream
Participating Area: Biology

(REQUIRED) Program name

Biology

(REQUIRED) We are halfway through our 6-year cycle. Is your department/program on target to complete CLO assessment by Spring 2022? Please attach your schedule for CLO assessment, with explanations as needed.

Refer back to Direction #3 on how to attach documents.

Our department is still on target to complete the CLO assessments by Spring 2022. We created a tentative schedule (see attached) to complete all CLO assessments within the first three years and have had delay completed a few course assessments for the following reasons:

1) Many of our assessments fell to the responsibility of our two chairs: Paul Sykes and Bill Brothers. They have been responsible for courses that in some cases, they do not themselves teach, and have had to work in collaboration with other adjuncts. Some of these adjuncts have only taught the course once or are no longer teaching the course. These issues, on top of the growing demands on time for our chairs, has made it difficult to complete each CLO assessment assigned to them as initially scheduled. The following course assessments are being completed a little behind schedule but will be completed by next semester:

BIOL 110 (Sykes)

BIOL 115 (Sykes)

BIOL 130 (Skills and technology; Sykes and Mokili)

BIOL 235 (Brothers)

2) BIOL 210B CLOs assessment was initially set to be completed by our only instructor for the course, Janice Clymer. Due to early retirement, Dr. Clymer was unable to complete the CLOs assessment for this course. Daniela Bruckman is our new contract faculty member, dedicated to this course, but as it is her first semester here with us, we did not ask that she complete this assessment without first having the opportunity to teach the course and determine the manner in which she felt assessment should take place. She will be joined next semester by another new first year contract faculty member, Dean Leavitt, who will help her with this assessment. We anticipate these assessments will be completed within one year (by the end of Fall 2019)

3) BIOL 215 was initially taught by Professor Chris Dawes, who has also recently retired. The course has been taken up by one of our adjunct faculty, Reagan Furbish. She plans to help us complete this assessment in the Spring 2019 semester, as the course is only offered in the spring.

*All of the CLO assessments in our program will be completed by the end of this year, latest by Fall 2019.

(REQUIRED) Please list your PLOs.

The Biology Program SLOs are as follows:

1) **Critical thinking** - Think critically, developing the skills to ask vital questions and solve biological problems by applying the Scientific Method.

2) **Communication** - Demonstrate the ability to report and/or explain scientific information appropriately.

3) **Skills and Technology Applications** - Investigate biological questions using appropriate tools and techniques.

4) **Environmental Responsibility** - Demonstrate environmental awareness by recognizing the importance of interconnections among living organisms, including people, and their environments.

5) **Personal Responsibility** - Come prepared for class and complete assigned work thoughtfully.

(REQUIRED) What progress have you made in your PLO assessment? Please attach your schedule, with explanations as needed.

Refer back to Direction #3 on how to attach documents.

We have completed our PLO assessment. As the assessment has been completed, we have attached the assessment findings (completed in the 2017-2018 cycle) instead of a PLO assessment schedule. Below are the details (explanation) of our rationale and findings:

In order to declare as a Biology major, students are required to complete our Biology 210A and 210B classes. Biology 210A is a prerequisite for Biology 210B, and therefore, students that successfully complete Biology 210B would have also had to successfully complete Biology 210A. Course learning outcomes (CLOs) for both of these courses are mapped to our PLOs. Therefore, students successfully meeting our CLOs for these courses would meet our target/benchmark for this particular pathway. Assessment involved successful completion in Biology 210B of all laboratory workbook and performance in laboratory activities, as well as successful performance on laboratory and lecture exams. In addition, students were required to successfully complete a scientific lab report in Biology 210B to meet the above PLOs. The target benchmark was for students to achieve, at minimum, an average of 70% success rate for the above assessment parameters: completion of all laboratory workbook and performance in laboratory activities, successful performance on laboratory and lecture exams, and successful completion of a scientific lab report in Biology 210B.

All assessments were created and administered in the lecture and laboratory settings by Dr. Janice Clymer, who was the sole instructor for all of the Biology 210B section.

A total of 36 students participated in the assessment for Spring 2018. The benchmark was successfully met, with an overall student success rate of 71%. Students that successfully complete the Biology 210A and 210B sequence are then qualified for transfer to a four-year college or university to continue with their course work for Biology majors, should they choose to do so.

The department discussed the relevance of assessing the Biology 210 series (Bio210A and Bio 210B) as a pivotal pathway in the Biology program. It was felt that student success in Biology 210B best exemplified success in transfer for Biology majors. To this end, it was determined that student success be measured based on their ability to critically think, communicate and effectively demonstrate laboratory skills. Laboratory workbook completion and activities involvement best exemplifies success and ability to transfer. Furthermore, performance on laboratory and lecture exams would provide concrete evidence of a student's ability to critically think, communicate, demonstrate personal responsibility, recognize the importance of interconnections among organisms, and apply learned content in preparation for transfer.

As a part of the discussion, we also considered whether the number of degrees awarded in Biology (AS Biology and Transfer Biology) should be used as an additional factor in our PLO assessment and how meaningful this would be in the assessment of ultimate student success. The department came to the conclusion that because obtaining an AS degree is not a requirement for those students who are pursuing a bachelor's degree or higher degrees in Biology, that this information would not provide a significant bearing on ultimate student success in the future.

(REQUIRED) What have your completed assessments revealed about your courses or program?

Our assessments reveal that there is an overall success in most courses, reaching the benchmark initially set up for each course. Our next step is to meet as a department and share our individual course assessment strategies and determine if our methods are satisfactory or if changes in the future need to be made. While we are happy with our assessment, we understand that various factors contribute to a student's overall success.

We have addressed any issues as well as our plan for the future below.

(REQUIRED) If issues or problems were identified, what is your plan for implementing change?

BIOL 107 section averages varied from 56% to 85% (67.49% average for all 28 sections). All other courses assessed, even with variation, showed that students met or exceeded benchmarks set.

One consensus during discussion for each course assessment was the need for us to continue to find ways to engage our students, develop our curriculum, and remain cognizant of equity gaps among our student population. There are equity gaps in student success rates for the program, and using BIO 107 as an example, we see the need to consider these groups and their needs:

Group/Population	Success rate	Equity gap	Equity Gap (BIOL 107)
Black/African American	57%	-13%	-17%
LatinX	63%	-7%	-7%

Native American	64%	-6%	+7%
Age 18-24	68%	-2%	-2%
First generation	67%	-3%	-4%
Current HS student	60%	-10%	-4%
First time student	59%	-11%	-3%

The BIOL 210A CLO#1 (Critical Thinking) fell below the benchmark value (67%; benchmark was 70% success);

In terms of the assessment itself, we would like to repeat it in a subsequent semester to evaluate whether the results are consistent and truly representative of this course. Knowing ahead of time that these are difficult concepts for students, we also have plans on how to provide additional support for students.

More class support is needed for students in this course; this includes tutors (both general and available in the STEM center), resources like models and interactive videos, and workshops held outside of class time. Models and activities have been purchased for both use in the classroom and in the STEM center, mainly with funds from the Title III HSI-STEM grant. Worksheets have been developed to accompany some of these models, and faculty plan to continue to develop worksheets and guides for the remaining models to encourage student use. Further, lab supplies and equipment have been purchased to revise current lab exerices and to incorporate new ones, also with funds from the Title III HSI-STEM grant. The faculty of this course plan to revise current lab exercises and to develop new ones in order to bring the biotechnology part of the course up-to-date and to provide a more interactive and hands-on experience for the students. Finally, the faculty plan to continue to meet to discuss course objectives and develop innovative methods and opportunities for the students, including the development of workshops/discussion sessions.

Faculty are aware of the challenges and are continuing to try various strategies in and outside of the classroom to close these gaps. For our students, this involves dedicated time with classroom tutors, attendance at discussion sessions, exposure to biological models to help illustrate key concepts, as well as availability to modern, working equipment. While we have not asked specifically for any resources within our CLOs assessment forms, we see that the time constraints placed 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. Our requests for faculty (see FHP form), ILTs (we will be hiring two new ILTs to start Sp2019) or resources for our classrooms (see BARC request) will hopefully begin to help us support our students and their success.

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

- Equipment
- Faculty
- Classified Professionals

Please provide any other comments.

As previously stated, we have not made any specific requests for resources within our CLO assessment forms, but have referenced requests that we have asked for in this Program Review cycle: faculty request, classified help, equipment. Time is another major factors. Overall, we are satisfied with our assessment results and will continue to think of ways in which we can best serve our students to improve on success rates where needed. Our current contract faculty are spread too thin, so we are grateful for the new hires that have joined our department but see the need to continue and find balance. As instructors, we have spent time assessing our students and their success long before it was formally asked of us, and will continue to do so.

Form: "2018/19 Comprehensive Program Review Instructional Program Analysis Section"

Created with : Taskstream
Participating Area: Biology

(REQUIRED) Program name

Biology

(REQUIRED) Using the data dashboards, discuss how students are doing in your program. Please refer to indicators of success, retention, persistence, etc.

Our overall success rate in the biology department is 70%, sightly below the college average of 72%. Trends show that student success is highest in summer sessions. Individual courses range from 45%-90% success rates, with the majority (11/18) above 70% and 2 courses slightly below 70% (68%). We have several courses with extremely high success rates (>80%); these include BIOL100, BIOL 200, BIOL205, BIOL235, BIOL231, and BIOL232. Of these, two courses BIOL205, General Microbiology, and 230, Anatomy, are requirements for the allied health, including nursing, degree programs; thus they are also some of our most in-demand courses. General Biology (BIOL 107) is our largest course (currently 28 sections/semester) and fulfills degree requirements for allied health programs and general education; for having such a diverse student population and provides introductory and foundational course concepts, a success rate of 68% is fairly good. One of our classes, Biostatistics (BIOL 200), has our hightest success rate, being at or over 90% since Fall 2014; this is most likely due to consistency in the faculty assigned this course. Our course with the lowest success rate (45%) is BIOL 160 Anatomy and Physiology. We have taken steps to increase this by offering Classroom Tutoring (starting with spring 2018 semester) (see Program Analysis) and we also will be hiring a new contract faculty to teach this course (to start Fall 2019) and an ILT support staff (to start Spring 2019).

Our overall retention rate is 85%, above the college average of 80%. Looking at the courses required for the allied health degree attainment (BIOL 107, 205, 230 and 235), all of them are at or above 80% (with the highest of 92% in BIOL 205, General Microbiology). Further the courses required for the transfer-track degree attainment (BIOL 200, 210A, and 210B) are also all over 87%.

In terms of equity, there is no gap between success of males and females, first generation students nor by age of our students. However, there is a 11% gap for "1st time students" (not first generation), 13% for "black/African American", 7% for "Latinx", and 6% for "Native Amerians". Thus, the focus on increasing support services and professional development (see Equity below) are integral in descreasing these gaps.

(REQUIRED) How does your program help to prepare students for success beyond your classrooms?

All courses offered in the biology department require critical thinking and analytical skills on top of the respective biological concepts. This provides students with skills necessary for success regardless of major or career path. Further, students become scientifically literate

allowing them to navigate through an abundance of information available in our current digital world. They are also able to make informed decisions on many topics of both personal (medical) and societal importance and relevance (GMO's, stem cells, genetic ancestry, etc). This is especially important in the times of "fake news" and abundant "pseudoscience" and "junk science".

The laboratory component accompanying many of our courses, provides students with opportunities to enact the scientific method, and learn not only how to collect data but represent it in a visual manner. This requires a high level of critical thinking and quantitative skills. Proficiency in graphical programs, such as Microsoft Excel, are highly sought skills required of many employers across a wide variety of disciplines. Thus the incorporation of data analysis in these laboratory courses provides students with marketable job skills.

Finally we offer many other opportunities for students to gain real-life experience with scientific careers. For example, every semester BIOL 210A students (Introduction to the Biological Sciences 1) can attend a field trip to the San Diego Zoo Safari Park Conservation Lab, students in BIOL 110 (Introduction to Oceanography) and BIOL 115 (Maring Biology) couses attend a research cruise aboard the R/V Yellowfin in which students spend 6 hours aboard the ship and retrieve planktonic organisms for analysis, and faculty advisor to the Women in Science Club, Jennifer Carmichael, provides career exploration and internship opportunities (including Bridges to the Baccalaurate) to support female and under-represented minority students.

(REQUIRED) Given your stated area(s) of focus in your program overview section, has your program introduced new or different actions that may have affected changes in these indicators? Please describe.

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

Adjunct instructors will now be performing student evaluations every semester. This will allow for the identification of any instructor falling below acceptable criteria and allow for us to provide support and mentoring to that individual. This is greatly needed with our high adjunct/contract faculty ratio, especially in Biol 107 that not only is our largest course (28 sections/semester) but is the pre-requisite to many other courses as part of allied health degree attainment.

2. 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.

As we recognize equity gaps exist among our students with the highest being "first time students", "Black/African American" and "Latinx" the integration of new and development of current student support services will help create a culture of community learning that will benefit all our students.

Tutoring/Support Services (also see equity section below):

We have increased the number of general tutoring and course specific support services available to our students over the past year. For example, there are now eleven general tutors available for the following courses: 107, 130, 160, 205, 210A, 210B, 230 and 234. Further there are now Classroom tutors (CT) available in two courses, 107 and 160, covering a total of 8 sections in spring 2018. While there are no direct data measurements for these actions (see answer below for additional data sets requested), we can generally analyze the effects of these services. For example,in the BIOL 160 course, "Black/African American" students, the success rate in spring 2018 (which offered a CT for the first time) was 58%, the highest it has been in four years; additionally, the success rate of first generation students was 42% where it has been under 40% for the past six semesters.

Discussion Sessions (also see equity section below):

Every semester, two contract faculty, Jennifer Carmichael and Anar Brahmbhatt, offering weekly discussion sessions for students in their BIOL 210A (and BIOL 205 for Anar Brahmbhatt) courses. These are optional for the students are held outside of class-time. This course involves difficult and complex concepts that many students struggle with and thus need more time and assistance. In these weekly hour sessions, students work together to review, discuss and apply these concepts. Students also get assistance from their professor and develop collaborative skills by working with their classmates. As stated in the Title III HSI-STEM Grant: "Increasing Persistence of College Students in STEM," a 2013 *Science* journal article by M.J. Graham et. al discusses how a persistent framework of support activities can increase the confidence and motivation of STEM majors. This includes early research experiences, active learning in introductory courses and being part of a community as critical components for effective learning and "feeling like a scientist". These "discussion sessions" achieve support and create a community between the students; they also allow time for the students to explore the biological topics from an interactive and hands-on perspective. It has been observed that stronger students are able to explain the concepts to their classmates and steadily improve their comprehension and communication skills. Students also develop self-confidence and demonstrate increased engagement in the classroom, which lends to increased retention rates and overall success.

(REQUIRED) Has your program introduced any new actions specifically focused on issues of equity? Please describe.

Professional Development:

In the summer of 2017 two contract faculty, Jennifer Carmichael and Todd White, participated in Mesa's "Course Redesign Institute" where they not only redesigned their syllabi but introduced the philosophies of "Reading Apprenticeship" and "Growth Mindset" into their courses. Additionally, in the summer of 2017, Jennifer Carmichael was admitted in to the Howard Hughes Medical Institute (HHMI) Biointeractive Faculty Mentor Program. This program is a community-based learning network in which faculty adapt and implement current HHMI Biointeractive modules into their classroom focused on improving students' quantitative skills. Jennifer developed activities for her general biology (BIOL 107) course to complement both lecture and laboratory concepts. For lab, she implemented graphing activities aimed at improving students' Excel skills; part of the HHMI Biointeractive modules included Excel (and Google Sheets) tutorials to "level the playing field" so that all students had an equitable chance for success. Finally, a Student-Faculty Mentor Program was initiated in fall 2017 as part of the STEM Conexiones (Title III HSI-STEM grant). Training for the faculty mentors was developed by Jennifer Carmichael, former "Professional Development Coordinator". The overall mission of the HSI-STEM grant is "to increase the success, retention, transfer, and graduation rate of Hispanic and/or low-income STEM majors" and the goal of the Student-Faculty Mentor Program was to "to help STEM majors succeed in their educational journey, to provide support and encouragement, to discuss future career plans and to help navigate the

college experience including course scheduling, transferring and Mesa services". Two Biology adjunct instructors, Julia Hoopes and Christina Burnett, were chosen to be faculty mentors for the fall 2017 and spring 2018 semesters.

Tutoring/Support Services

We have increased the amount and type of tutoring and support services available to our students. Jennifer Carmichael has served as the Biology Tutoring Liaison since spring 2017 and since serving in this position the biology department has greatly increased the number of tutors and available courses for students. Before this time, there were 1-2 tutors in a limited number of courses and now there are 11 tutors for the following biology courses: 107, 130, 160, 205, 210A, 210B, 230, 235; tutors are available to students in the STEM center, the 4th floor of the LRC, and the Honors Center.

Further, in 2017-2018 we increased the number of sections of and the courses offering a classroom tutor (CT). In fall 2017, there were 2 sections of BIOL 107 offering a CT, which increased to six sections in the spring 2018; also, in spring 2018, BIOL 160 had a CT for the first time due to the request of tenured faculty Anne Geller. As BIOL 160 is one of our courses with a low success rate (45%) this offering will greatly benefit our students. The benefits of the classroom tutoring program include "students--and particularly those who are traditionally underserved and underrepresented--will benefit from equity-centered tutoring practices" of peer-assisted community learning and the CT program is "a free service offered to all students".

Finally, in fall 2017, tenured faculty Jennifer Carmichael, received an HSI-STEM faculty mini-grant in order to hold weekly discussion sessions for her students in the Introduction to the Biological Sciences I (BIOL 210A) course. As stated in the Title III HSI-STEM Grant: "Increasing Persistence of College Students in STEM," a 2013 *Science* journal article by M.J. Graham et. al discusses how a persistent framework of support activities can increase the confidence and motivation of STEM majors. This includes early research experiences, active learning in introductory courses and being part of a community as critical components for effective learning and "feeling like a scientist". These "discussion sessions" provided support and created a community between the students; they also allowed time for the students to explore the biological topics from an interactive and hands-on perspective. As a result, students developed self-confidence and demonstrated increased engagement in the classroom. In terms of equity, as stated in the Title III HSI-STEM grant, a review of "The Horizon of Possibilities: How Faculty in Hispanic-Serving Institutions Can Reshape the Production and Legitimization of Knowledge Within Academia" by Gonzales, L.D., 2015 has led San Diego Mesa to the conclusion that Hispanic and low-income STEM students require a special set of interventions that include a space where they can work with other students; targeted assistance and faculty who better understand their needs". Thus, by fostering a safe space for students to learn and interact with one another, a community of learning was created. Community has been shown to be vital for success in STEM fields, and also correlates to family values found in Hispanic culture. Support has also been shown to be critical to women and other under-represented minorities in STEM for not only overall success but persistence, especially in upper level classes and programs where the percentage of women and minorities greatly decreases. The students that participated in the weekly discussion sessions, now have a community of support which will aid in their continued success as they enroll in not only in BIOL 210B but chemistry and math courses, and success in upper-level courses as well.

Classroom Resources/Lab Equipment

Additional resources have been purchased to aid in student success. This includes models and hands-on activities such as "Water Kit", "Amino Acid Starter Kit" and "Enzymes in Action" from 3D Molecular Designs that complement the course material of BIOL 107 and BIOL 210A. These models are available for students in the STEM center as well as to instructors to utilize in the classroom (and have also been used in BIOL 210A discussion sessions described above). Further, resources have been purchased to supplement lab instruction, mainly in the BIOL210A and BIOL210B (Introduction to the Biological Sciences II) courses; these include lab aprons and googles for BIOL210A and dissection kits for

BIOL210B. These models and supplies are vital to equity as many underserved students cannot afford to purchase items needed for STEM courses, and a full 70% of current STEM majors are classified as low income; thus these additional resources will assist low-income (as well as all students) to be successful in their current biology courses and help them develop vital foundational knowledge and skills that will allow for success in future biology and upper-level STEM courses. Finally, lab equipment for the BIOL 210A course was also purchased in order to make the biotechnology portion of the course more current and provide students with relevant and applicable laboratory skills for upper-level courses and the job market.

(REQUIRED) Describe the trends in enrollment for your program. What changes might you foresee in the next 2-3 years?

Our fill rates are consistently over 95%. We have increased the number of sections offered for many classes over the last few years, including BIOL 107 (26 to 28 sections), 205 (4 to 9 sections), 210A (5 to 6 sections), and 210B (3 to 5 sections). We expect our classes to remain in demand as they fulfill requirements for allied health track programs and degree attainment and general education transfer and/or degree attainment, and therefore provide training for some of the highest demand, well paid fields. However, we do not have adequate faculty needed to stay current with these trends and still maintain Mesa College's high standard of academic excellence.

(REQUIRED) Are there any data sets that are not already provided in the dashboards that you could use to inform your program?

Yes. The following data sets, if available, would greatly allow us to evaluate the success of specifically implemented changes, student support services, and out-of-class opportunities for students.

1. Tutoring Success: to include both general tutoring and Classroom Tutoring

The ability to compare success rates and retention rates of students in courses and sections that offer a Classroom Tutor compared to those that didn't.

The ability to compare success rates and rention rates of students in specific courses that utiized general tutoring services, both in the STEM center and on the 4th floor of the LRC.

2. STEM Center: include visiting and use of any models/resources

The ability to compare success rates and retention rates of students that utilized the STEM center for a variety of reasons, including group studying, to visit a tutor, or to utilize any of the available resources.

(REQUIRED) In what ways can the college support your program in our effort to encourage major and career exploration early on in a student's college experience?

The college should continue to support such programs at the STEM lecture series, the Women in Science club, and the Biomedical Journal Club; in fact students selecting Biology as a major or express interest in doing so to a tutor or counselor, should be referred to these programs and the respective leads (Don Barrie, Physical Sciences; Jennifer Carmichael, Biology, and Kevin Krown, Biology).

Additonally, the Student-Faculty mentor program initiated as part of the Title III HSI-STEM grant should be revitalized; it is unfortunate that only after one year, this program was discontinued; students should be referred to a biology faculty member in order to discuss career exploration and possibilities. Further, I'd encourage the counseling department to work with us to ensure students are enrolled in the correct classes, as there has historically been difficulty in determining whether students should take BIOL 107 or 210A.

The Following Questions are for CTE Programs/Services ONLY.

Enter "not applicable" if your program/service is not CTE.

_____

(REQUIRED) For CTE programs ONLY: Provide specific labor market information showing: 1) Number of jobs available or projected in San Diego County 2) Number of other institutions offering the program 3) How many Mesa students completed the program in the last three years 4) The pay rates for those in the industry (limit 500 characters) (P.N.2.A)

Enter "not applicable" if your program is not CTE.

not applicable

(REQUIRED) For CTE Services ONLY: How are CTE students identified and tracked for service? (limit 500 characters) (P.N.2.B)

Enter "not applicable" if your service is not CTE.

not applicable

(REQUIRED) For CTE programs/services ONLY: Upload the report from Launchboard that includes at least three (3) of the following Strong Workforce metrics for your BASELINE year.

Please use the Cal-PASS Plus Launchboard Link available in the Directions.

Refer back to Direction #3 to #6 on how to attach documents.

Strong Workforce Program Metrics
a. Number of Enrollments
b. Number of students Who Got a Degree or Certificate
c. Number of Students Who Transferred
d. Percentage of Students Employed in Two Quarters After Exit
e. Percentage of Students Employed in Four Quarters After Exit
f. Median Earnings in Dollars Two Quarters After Exit
g. Percentage of Students Who Achieved a Job Closely Related to Field of Study
h. Percentage Change in Earrings
i. Percentage Who Attended a Living Wage.

Enter "not applicable" if your program/services is not CTE.

not applicable

(REQUIRED) For CTE programs/services ONLY Upload the report from the CCCO Perkins site for the College Aggregate Core Indicator Information by 6 digit TOP Code.

Please use the Core Indicator Reports Link available in the Directions.

Refer back to Direction #3 to #6 on how to attach documents.

Enter "not applicable" if your program/service is not CTE.

not applicable

Outcomes and Assessment (REQUIRED)

Form: 2018/19 Comprehensive Program Review Instructional Outcomes and Assessment Section (See appendix)

File Attachments:

1. **Biology Program Schedule for CLO Assessment** (See appendix)
2. **PLOs assessment findings** (See appendix)

Program Analysis (REQUIRED)

Form: 2018/19 Comprehensive Program Review Instructional Program Analysis Section (See appendix)

Program Goals (REQUIRED)

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

Goal

Goal	Mapping
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 member, 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	**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:

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.

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.

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:

Biology Program Goal 2018-2019: Student Success and Retention

Goal

Goal	Mapping
To change advisories of the college-prepared level math and English to actual prerequisites 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 withdrawl rate of about 15% whereas students without the advisories had a withdrawl rate of about 26%.	**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:

Biology Program Goal 2018-2019: Yearly Budget

Goal

Goal	Mapping
Restore and Increase supply	**CA- Mesa College Strategic Directions**

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 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.	**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:

CA- Mesa College- Biology SLO's (Copy 2)
(Effective June 2009)

Biology SLO's

Students who complete the Biology Program will be able to:

Outcome	Mapping
Critical Thinking Think critically, developing the skills to ask vital questions and solve biological problems by applying the Scientific Method.	**General Education Outcomes:** Language and Rationality 3, Natural Sciences 1, Natural Sciences 3, Natural Sciences 4, **Institutional Learning Outcomes:** Critical Thinking:
Communication Demonstrate the ability to report and/or explain scientific information appropriately.	**General Education Outcomes:** Language and Rationality 1, Language and Rationality 2, Language and Rationality 3, Language and Rationality 4, Natural Sciences 1, Natural Sciences 2, **Institutional Learning Outcomes:**

	Communication:, Critical Thinking:, Global Awareness:, Personal Actions and Civic Responsibility:, Self-awareness and Interpersonal Skills:, Technological Awareness:
Skills and Technology Applications Investigate biological questions using appropriate tools and techniques.	**General Education Outcomes:** Natural Sciences 2, Natural Sciences 3, Social and Behavioral Sciences 3, **Institutional Learning Outcomes:** Technological Awareness:
Environmental Responsibility Demonstrate environmental awareness by recognizing the importance of interconnections among living organisms, including people, and their environments.	**General Education Outcomes:** Natural Sciences 2, Natural Sciences 3, Social and Behavioral Sciences 1, **Institutional Learning Outcomes:** Global Awareness:, Personal Actions and Civic Responsibility:
Personal Responsibility Come prepared for class and complete assigned work thoughtfully.	**General Education Outcomes:** Social and Behavioral Sciences 1, **Institutional Learning Outcomes:** Personal Actions and Civic Responsibility:, Self-awareness and Interpersonal Skills:

Program Learning Outcomes for Biology

Outcome

Outcome	Mapping
PLO #1: Critical Thinking Think critically, developing the skills to ask vital questions and solve biological problems by applying the Scientific Method.	**Institutional Learning Outcomes 2016/17:** Communication, Critical Thinking, Global Consciousness, Information Literacy, Professional & Ethical Behavior
PLO #2: Communication Demonstrate the ability to report and/or explain scientific information appropriately.	**Institutional Learning Outcomes 2016/17:** Communication, Critical Thinking, Global Consciousness, Information Literacy, Professional & Ethical Behavior

PLO #3: Skills and Technology Applications Investigate biological questions using appropriate tools and techniques.	**Institutional Learning Outcomes 2016/17:** Communication, Critical Thinking, Information Literacy
PLO #4: Environmental Responsibility Demonstrate environmental awareness by recognizing the importance of interconnections among living organisms, including people, and their environments.	**Institutional Learning Outcomes 2016/17:** Communication, Critical Thinking, Global Consciousness, Information Literacy, Professional & Ethical Behavior
PLO #5: Personal Responsibility Come prepared for class and complete assigned work thoughtfully.	**Institutional Learning Outcomes 2016/17:** Global Consciousness, Information Literacy, Professional & Ethical Behavior

Action Plans for Non CTE Programs (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 member, 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 three new contract faculty positions within the 2014-2015 Program Review document and complete three separate Request for Faculty Position forms
Who will be responsible for overseeing the completion of this objective:	Anne Geller and Anar Brahmbhatt
Provide a timeline for the actions:	Program Review and Faculty Position requests will be completed by January 30, 2015 (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 requests are approved by the Faculty Hiring Priorities Committee and also at the District level.
List resources needed 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 both positions. One position has already had to start a second search, as a qualified candidate was not found during the first search. Our hope is that this goal will be completed by the start of the spring 2019 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 positions (ILT) within the 2018-2019 Program Review document and completing the Classified Staff Position Request form
Who will be responsible for overseeing the completion of this objective:	Paul Sykes
Provide a timeline for the actions:	Program Review and Classified Staff Position request will be completed by February 4, 2019 (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 achieve this objective and associated costs	The resources needed to achieve this objective include: 1) funding for these salaried positions, 2) individuals to serve on a hiring committee

(Supplies, Equipment, Computer Equipment, Travel & Conference, Software, Facilities, Classified Staff, Faculty, Other):	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

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

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 withdrawl rate of about 15% whereas students without the advisories had a withdrawl 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	Anar Brahmbhatt, Jennifer Carmichael, and Mesa College Department Chairs

objective:	
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 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.

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 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 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) (See appendix)

BARC form for Goal 3 objective 1

SDCCD Site Safety Plan (Adobe Acrobat Document) (See appendix)

SDCCD Site Safety Plan

Project Plan for CTE Programs Only (REQUIRED)

Closing the Loop (REQUIRED)

Form: 2018/19 Comprehensive Program Review Instructional Closing the Loop (See appendix)

Form: "2018/19 Comprehensive Program Review Instructional Closing the Loop"

Created with : Taskstream
Participating Area: Biology

(REQUIRED) Program name

Biology

(REQUIRED) Which one(s) of the following were received in past year?

- BARC
- Faculty
- Foundation Minigrants
- Classified Professional
- Other: AS Grant, HSI-STEM, Math/Science Fiduciary account

(REQUIRED) How have these resources benefited your program and your students?

BARC resources:

This past year, our microbiology course was provided with much needed equipment through BARC resources. The items received were an absolute necessity to ensure student safety and maintain our high level of instruction in the Bio 205 (General Microbiology) laboratory:

1) 2 refrigerators for media or live culture storage

2) 4 mini refrigerators for media storage

3) 1 Analytical balance for media preparation

4) 30 hot plates for student specimen preparation

5) Installation of benchtop incubator framework (for 24 incubators)

Benefits to the program and students: (Items 1 and 2): In order to maintain microbial cultures (preparations of live bacteria), students are required to preserve their specimens in the refrigerators. They work with several species of microorganisms to separate and isolate specific organisms from a mixed environment, characterize, and finally identify each organism using specific tests requiring specialized media (the food source required for growth of these specimens in Petri dishes or test tubes). This lab-intensive course did not have an adequate amount of refrigerator space for even the typical six sections (our goal being 10 sections), as a consequence, we had to scale down our section numbers (down to 4 at one point) to ensure that we could safely contain the microbial growth that poses a health risk if improperly stored. Furthermore, sterile media (media free of any bacterial growth) must be stored separately under refrigeration in a location separate from our specimens. One large fridge to be placed along a wall (for student cultures) and two mini-fridges (to be stored underneath the proposed new bench tops, for sterile media storage) per lab room (2 total rooms) took care of the needs of up to 10 lab sections total. (Item 3): The analytical balance is being used in the ILT prep room to aid in media preparation as

the current balances are no longer functional. Dry ingredients must be carefully weighed out and then added to liquids (typically sterile water) before treated and dispensed into appropriate media containers. With the intent to restore the number of sections to 10 sections, this additional balance has allowed us keep up with the pace of media preparation. (Item 4): Hotplates are needed to ensure safety in the student labs. There are at least 3 lab exercises that require moist heat to prepare specimens for viewing under the microscope, a key aspect of this course involved in studying microbial life. The previous setup involved the use of a Bunsen burner as the heat source. A metal beaker was suspended over the flame of the burner, used to heat the water and staining chemicals within the beaker to boiling temperatures. This was an unsafe setup in which students were at risk of spilling the boiling contents (some of which are flammable) within the beaker. The use of hotplates has improved student safety significantly as they have allowed each user to carefully monitor and adjust their experimental setup in the absence of an open flame. (Item 4): We have 24 incubators (12 in each student lab room) that had been stacked in an unstable manner without proper mounting against our lab walls for the past 3 years; these incubators were not up to code. In addition, these incubators were located adjacent to student lab benches, creating a serious safety threat to our students should they fall. This serious code and safety issue had also been pointed out by safety inspectors but had yet to be resolved, creating a serious liability. In addition, though we had brought this to the attention of the school, in the past, we did not receive any support to remedy this issue. An appropriate, highly stable framework to house each set of 12 incubators was designed and installed in our lab rooms before the start of the fall 2018 semester. We could not be more pleased or more appreciative to have received these resources and to those individuals that made this possible. We plan to add run 9 sections in the spring 2019 semester now that we have these resources and our request for a 2nd microbiology ILT will go into effect.

Faculty:

We hired three new tenure-track contract faculty members who started with us this fall 2018 semester: Daniela Bruckman (teaching Bio 210B (majors Introduction to the Biological Science Part II) and Bio107 (General Biology), Dean Leavitt (teaching Bio 100 (Natural History) and Bio 107), and Paige Connell (dedicated to Bio 107 entirely). All three of our new faculty began teaching Bio 107 as half of their load. This was a great benefit to our program, as traditionally we have had a disproportionate number of adjunct faculty teaching this course. We are up to 7.73 FTEF in this course this semester (up from an FTEF of 6.00 in the fall 2014 semester). Daniela also teaches Bio 210B and due to the retirement of Dr. Janice Clymer (who was our sole contract faculty member for this course) and the upcoming increase from 3 sections this semester to 5 in the spring 2019 semester, we will need to reorganize once again and ask Dean to teach Bio210B alongside Daniela, effectively taking him away from the Bio 107 course, as he will continue to teach Bio 100. Paige will remain dedicated to Bio 107. All three new members come with a great deal of expertise and we are very pleased with their progress and contributions to our program. Their contributions to our department are also greatly needed in light of the loss of Dr. Janice Clymer's retirement and the loss of Dr. Miranda Mitchem, whose tenure track contract was not renewed. Both faculty members taught Bio 107 as half of their loads. Their combined FTEF is 1.108 this fall 2018 and will increase to 1.152 in the spring 2019 semester.

We have also been given permission to begin our search for a new faculty member this spring 2019 to teach Anatomy/Physiology and General Biology (to start fall 2019). It has been challenging to find qualified instructors to teach the Anatomy and Physiology courses in our department. While Dr. Anne Geller has been away on sabbatical this past fall 2018

semester, we were unable to find qualified individuals to teach her load (all anatomy and physiology) and had to cancel 2 sections, a big loss to our students.

We will also be writing for an additional faculty member to teach Bio 205 (General Microbiology) to help replace Dr. Mitchem's position. With this absence and the increase from 6 sections fall 2018) to 9 sections (spring 2019), we will need a faculty member dedicated to this course. Our current instructors teach microbiology as half or less than half of their load. We have provided details justifying the need for this position in our request for a new faculty position.

Foundation Minigrants:

A faculty member of the Biology Department, Dr. Paul Sykes, received a $500 mini-grant from the SD Mesa College Foundation four or five years ago. These funds were used to help fund a research cruise for his Honors Oceanography class aboard the R/V Yellowfin. Students from this class and other Marine Biology and Oceanography classes spent 6 hours at sea aboard this ship and, among other things, retrieved planktonic organisms from the mesopelagic zone in the Catalina Basin. The organisms retrieved are being used in Marine Biology, Oceanography, Intro to Biology (210B) and Zoology. The mini-grant was converted to an annual grant in support of this effort and we have taken the students out 2 other times with fall 2018 being the most recent. The actual cost of the trip is approximately $4000-$5000 so it is sometimes difficult to gather the balance of the funding needed to take this trip. This cruise provides hard to acquire organisms for our classes, gives budding oceanographers an once-in-a-lifetime opportunity to experience marine research *in situ*, and exposes other students to marine research as a possible career path. With an average success rate over the past four years of 77% (Bio 115: Marine Biology), 62% (Bio 110: Oceanography), 70% (Bio210B) and 75% (Bio 215: Zoology--with a note that the last two semester dropped down to 45% and 40% respectively), the additional fresh organisms and as well as unique opportunity for student engagement will hopefully increase student success in these courses.

Classified Professional:

This semester, we began and hope to complete our search for two separate ILT positions. Both are expected to start working in the spring 2019 semester. The first instructional laboratory technician (ILT) will help with our increased demand in our General Microbiology (Biology 205) course as well as our biology majors Introduction to the Biological Sciences I course (Biology 210A), emphasizing cellular and molecular biology. The second ILT will be in charge of lab prep for Anatomy and Physiology and most likely one or two other lab courses as needed (Bio 107 or Bio 210B). Both individuals will ideally be specialized to suit the needs of these specific lab-intensive courses and bring with them their unique expertise and perspective in these courses to ensure that our safety needs are met, to aid in curriculum development, and in general, have a willingness to help the rest of the department as needed. As mentioned previously, we will increase from 6 to 9 sections starting in the spring 2019 semester for Bio 205. Success rates have been traditionally very high in this course but we did experience a dip in rates from 85% in 2015/2016 to 79% in 2016/2017 (it was during this year that we had lost our ILT and were asked to accommodate students using help from NANCE workers who were not specifically qualified for the challenges specific to a microbiology lab course). It is now near 84% in 2017/2018 with 6 sections being taught and one dedicated ILT to the course. This first ILT will also be dedicated to the Bio 210A course (Introduction to the Biological Sciences Part 1) and will help us improve on our success in this course as we increase from 5 sections to 6 sections in the spring 2019 semester. Success rates have fluctuated in this course (a high of 83% to a low of 58%, with an average 68% in the past 4 years), while retention rates have remained high (88%

average). We have been concerned about these success rates and have taken steps to improve our students' success through requests for funding (see below for Bio 210A specific resources received and BARC for resources requested), and the procurement of an ILT who has expertise to help the instructors engage our students. Our current ILT, Cam Nghiem, has been with us for 20+ years and plans to retire very soon. Her knowledge of what is needed for this course has been somewhat limited and while she has been as helpful as possible, this has limited our ability to teach the course effectively and provide the best resources to our students. The new ILT would help to bridge this gap.

Other:

1) AS Grant: Faculty member, Dr. Jennifer Carmichael received $400 towards the annual Math and Sciences Open House event. This event, led by Mesa's faculty, staff and students, has brought over 250 attendees together, three years running, to make their way through demonstrations, hands-on activities and visual informational displays, centered around a popular theme for individuals of all ages and both in and out of STEM disciplines. The Open House's success is due to collaboration between instructors, staff and students from various disciplines in the creation of innovative and interactive demonstrations and activities. Students must apply both their learning of the scientific method and specific course concepts to facilitate their interactive activity as well as create relevant informational displays. This leads to greater student success coupled with the gain of vital communication and leadership skills. Mesa College itself is highlighted as a leading educational institution, as a learning resource to the community, and an inspiration to future Mesa Students. Unfortunately we were not able to hold the Open House this fall semester as Jennifer has had to reorganize her time and help the department by stepping in as co-Lead Writer with Dr. Anar Brahmbhatt for Program Review (during Dr. Anne Geller's sabbatical) and she has taken on the lead coordinating between instructors and ILT for the Bio 107 lab (28 sections). We hope to revitalize this important event in the future with the addition of our new contract faculty to help balance the load of duties in the department.

2) HSI-STEM: Dr. Carmichael was able to obtain the following resources to enhance learning for our students

-Bio 210A equipment: rocking platforms, thermal cycler, Gel Doc EZ system, Western blot apparatus

-Bio 210B: dissection supplies, human model

-Classroom models: Water Kit, Amino acid starter kit, Enzymes in Action kit

3) HSI-STEM: Dr. Carmichael also received a faculty mini grant to help conduct her Bio 210 Discussion sessions (an opportunity for students to meet outside the classroom and enrich their understanding and experience in the course)

4) Math/Science Fiduciary account: Led by Dr. Kevin Krown, the School Math and Sciences invites guest speakers (educators, healthcare professionals, and research scientists--local and beyond) to present in our STEM series. This is an enrichment opportunity for students to learn about science around the globe and the impact it has on our lives. Past speakers have come from SDSU, La Jolla Institute for Immunology, and even guest speakers from USC regarding physical therapy). Each speaker is provided a $200 honorarium for their time, with 5 speakers coming to our campus in the Fall 2017-2018 year..

Request Forms

- **BARC & Facilities Requests**
- **Classified Position Request**
- **Faculty Position Request**

BARC Request- Other

* = Response is required

BARC Online Form

Please use this form for any request that does not fit into one of the other forms.

The lead writer will be asked to fill out the following queries for each BARC resource requested:

*** 1. Provide the program/service area/administrative unit name:**

Biology Department

2. Provide the Improvement Goal number and the Objective number for that goal:

*** Improvement Goal Number**

3

*** Objective Number for that Improvement Goal**

1

*** 3. Requestor (Person to contact regarding the request):**

Leslie Seiger

*** 4. Item requested:**

Increase supply budget to cover addition of new sections and other costs

*** 5. One-time cost:**

0.01

(Any positive number greater than 0, up to 2 decimal places)

6. On-going costs (amount per year):

60100

(Any positive number greater than 0, up to 2 decimal places)

*** 7. Does this request require installation?**

No

7a. If yes, please describe the installation needed. If this involves facilities please attach the draft facilities request form. (Approximately 100 word limit)

8. Attach a recent quote and requisition to the appropriate Improvement Goal/Objective in the section titled "Objectives, Plans, and Resource Requests" in your main workspace.

9. If request is for replacement of equipment

If request is for replacement of equipment (not including computers or smart classroom installations covered through the Technology Replacement Plan), write a one paragraph statement (no bullets or other formatting) providing the age of the equipment, date of purchase, cost analysis of repair vs. replacement, and other important details. (Approximately 100 word limit)

n/a

10. Summarizing your need for this item

Write one paragraph (no bullets or other formatting) summarizing your need for ***this item*** as it relates to your program review. (Approximately 250 word limit)

We serve a large number of students, teaching over 88 sections this semester, 84 have laboratory instruction. All of our classes are above capacity and we still turn away many students. Our supply budget that supports our laboratory courses was arbitrarily cut by $20,000 in the fall of 2012. In addition, we have experienced gross increases in expenses due to inflation (eg. $2,000 additional for petri plates in one year). We have also increased course offerings significantly while necessarily updating curriculum. None of this was funded, even those added sections promised funding as a condition for being added. Cost cutting efforts now adversely impact student learning because vital hands-on laboratory instruction is compromised due to inadequate supplies for the number of students or simply not offering instruction in certain subjects if supplies are too costly. This negatively impacts quality education, student success and the regional workforce. We are currently only able to continue to operate our classes by requesting emergency funding on a repeated basis. This adversely affects other areas of Mesa College by creating unnecessary fiscal emergencies. Mesa has a Strategic Direction in support of accountability, another reason to not operate a major department in a state of fiscal crisis. Fiscal accountability is also an issue important for accreditation. Adequate supply budget is also necessary for health and safety as described below. As of December 2014, all of our department funds have been depleted, and we are now operating in the red.

11. Which College-wide Strategic Goals does this resource request address?

Write one paragraph (no bullets or other formatting) elaborating/explaining how this item will support, enhance, or improve the College Strategic Goals that you selected when writing the Improvement Goal associated with this resource request. (Approximately 100 word limit)

Goals 1.1, 1.2, 1.3, 1.4, 1.5, 4.1, 4.2, 5.1, 5.2, 6.1, 6.3 Only by being able to offer curriculum at an appropriate pedagogical level, can our department “deliver, advance, and support an inclusive teaching and learning environment that enables all students to achieve their educational goals.” Support of new teaching strategies using student-centered learning requires keeping up with changes in science and technology. Before we can “advance new technology applications in the classroom and on campus,” we absolutely must be able to sustain delivery of courses first, which we cannot do on a

formal budget that was insufficient a decade ago.

12. Identify the SLO or AUO for request

Write one paragraph (no bullets or other formatting) identifying the SLO or AUO that this request addresses or supports, and how it will enhance or improve the outcomes of student learning and achievement, or where appropriate, administrative effectiveness. (Approximately 250 word limit)

This request supports all five of the departmment SLOs and each of the multiple course SLOs in our laboratory courses (44 of the 88 sections we currently teach). It also supports the ILOs of Mesa. It does so by allowing us to continue to offer a curriculum and quality of instruction that are highly regarded and critically important to our students, as evidenced by the fact that we currently have 87 classes full 8% beyond capacity and are still turning away many students. The request to reinstate the funds that were eliminated from our long-time budget directly supports SLOs and ILOs by supporting instruction in the classroom. Biological sciences are by necessity hands-on and require laboratory experiences. Without reliable funding to supply these lab courses, we can not continue to offer them. The provision of a fixed budget that we can adhere to also assists Mesa in meeting its AUOs.

13. Elaborate on your assessment/evaluation plan

Write one paragraph (no bullets or other formatting) elaborating on your assessment/evaluation plan to determine achievement of the objective, relative to this item. (Approximately 250 word limit)

The department chair and the dean will review the annual budget on Web Advisor 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.

14. Is this request related to health or safety? Select Yes/No.

Yes

14a. If yes, please cite the applicable Mesa College Safety Plan section or regulatory citation. (Approximately 100 word limit)

Provide items such as hazmat containers and PPE (personal protective equipment) (Site Safety Plan pages 5, 12, 13).

15. Is this request based on a special accreditation need (non-ACCJC) or licensure requirement? Select Yes/No.

No

15a. If yes, cite the accrediting body or agency and provide an explanation. (Approximately 100 word limit)

Check Spelling

Submit Survey Responses Now

BARC Request- Other

* = Response is required

BARC Online Form

Please use this form for any request that does not fit into one of the other forms.

The lead writer will be asked to fill out the following queries for each BARC resource requested:

1. Provide the program/service area/administrative unit name:

Biology Department

2. Provide the Improvement Goal number and the Objective number for that goal:

Improvement Goal Number

3

Objective Number for that Improvement Goal

2

3. Requestor (Person to contact regarding the request):

Leslie Seiger

4. Item requested:

Restore supply funds that were removed from the department budget in 2012

5. One-time cost:

0.01

(Any positive number greater than 0, up to 2 decimal places)

6. On-going costs (amount per year):

20000

(Any positive number greater than 0, up to 2 decimal places)

7. Does this request require installation?

No

7a. If yes, please describe the installation needed. If this involves facilities please attach the draft facilities request form. (Approximately 100 word limit)

8. Attach a recent quote and requisition to the appropriate Improvement Goal/Objective in the section titled "Objectives, Plans, and Resource Requests" in your main workspace.

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n/a

10. Summarizing your need for this item

Write one paragraph (no bullets or other formatting) summarizing your need for ***this item*** as it relates to your program review. (Approximately 250 word limit)

Our supply budget that supports our laboratory courses was arbitrarily cut by $20,000 in the fall of 2012. We were told that we were cut to what we had actually spent the previous year and we provided evidence that this was an error, but the cut was never restored. Additionally, we have experienced gross increases in expenses due to inflation, increased course offerings and updated curriculum. Cost cutting efforts now adversely impact student learning because vital hands-on laboratory instruction is compromised due to inadequate supplies for the number of students or simply not offering instruction in certain subjects if supplies are too costly. This negatively impacts quality education, student success, and workforce needs. Health care and other biological sciences are a significant and growing area of employment in San Diego. We serve a large number of students, teaching over 80 sections each semester. All of our classes are full 8% beyond capacity and we still turn away many students. We are currently only able to continue to operate our classes by requesting emergency funding on a repeated basis. This adversely affects other areas of Mesa College by creating unnecessary fiscal emergencies. Mesa has a Strategic Direction in support of accountability, another reason to not operate a major department in a state of fiscal crisis. Fiscal accountability is also an issue important for accreditation. Adequate supply budget is also necessary for health and safety as described below.

11. Which College-wide Strategic Goals does this resource request address?

Write one paragraph (no bullets or other formatting) elaborating/explaining how this item will support, enhance, or improve the College Strategic Goals that you selected when writing the Improvement Goal associated with this resource request. (Approximately 100 word limit)

Goals 1.1, 1.2, 1.3, 1.4, 1.5, 4.1, 4.2, 5.1, 5.2, 6.1, 6.3 Only by being able to offer curriculum at an appropriate pedagogical level, can our department “deliver, advance, and support an inclusive teaching and learning environment that enables all students to achieve their educational goals.” Support of new teaching strategies using student-centered learning requires keeping up with changes in science and technology. Before we can “advance new technology applications in the classroom and on campus,” we absolutely must be able to sustain delivery of courses first, which we cannot do on a

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This request supports all five of the department SLOs and each of the multiple course SLOs in our laboratory courses (44 of the 88 sections we currently teach). It also supports the ILOs of Mesa. It does so by allowing us to continue to offer a curriculum and quality of instruction that are highly regarded and critically important to our students, as evidenced by the fact that we currently have 87 classes full 8% beyond capacity and are still turning away many students. The request to reinstate the funds that were eliminated from our long-time budget directly supports SLOs and ILOs by supporting instruction in the classroom. Biological sciences are by necessity hands-on and require laboratory experiences. Without reliable funding to supply these lab courses, we can not continue to offer them. The provision of a fixed budget that we can adhere to also assists Mesa in meeting its AUOs.

13. Elaborate on your assessment/evaluation plan

Write one paragraph (no bullets or other formatting) elaborating on your assessment/evaluation plan to determine achievement of the objective, relative to this item. (Approximately 250 word limit)

The department chair and the dean will review the annual budget on Web Advisor 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.

14. Is this request related to health or safety? Select Yes/No.

Yes

14a. If yes, please cite the applicable Mesa College Safety Plan section or regulatory citation. (Approximately 100 word limit)

Provide items such as hazmat containers and PPE (personal protective equipment) (Site Safety Plan pages 5, 12, 13).

15. Is this request based on a special accreditation need (non-ACCJC) or licensure requirement? Select Yes/No.

No

15a. If yes, cite the accrediting body or agency and provide an explanation. (Approximately 100 word limit)

Check Spelling

Submit Survey Responses Now

Reviewers

Liaison's Review

Form: Instructional Program Liaison's Review 2018/19 (Comprehensive)

Manager's Review

Form: Instructional Program Manager's Review 2018/19 (Comprehensive)

Appendix

A. **2018/19 Comprehensive Program Review Instructional Program Overview Section** (Form)
B. **2018/19 Comprehensive Program Review Instructional Curriculum Section** (Form)
C. **2018/19 Comprehensive Program Review Instructional Outcomes and Assessment Section** (Form)
D. **Biology Program Schedule for CLO Assessment** (Word Document (Open XML))
E. **PLOs assessment findings** (Microsoft Word)
F. **2018/19 Comprehensive Program Review Instructional Program Analysis Section** (Form)
G. **Goal3objective1.pdf** (Adobe Acrobat Document)
H. **Goal3objective2.pdf link opens in new window** (Adobe Acrobat Document)
I. **SDCCD Site Safety Plan** (Adobe Acrobat Document)
J. **SDCCD Site Safety Plan** (Adobe Acrobat Document)
K. **2018/19 Comprehensive Program Review Instructional Closing the Loop** (Form)

CLOs Assessment by Course (Summary)

Course/CLO		Status	Instructor
Bio 100	**Natural History-Environmental Biology**		
Critical Thinking/ Communication/ Environmental Responsibility		Completed 2016-2017	Seiger
Skills & Technology/ Personal Responsibility		Completed	Seiger
Bio 107	**General Biology**		
Critical Thinking		Completed 2016-2017	Clymer
Communication		Completed 2016-2017	White/ Carmichael
Skills & Technology F'19			White/ Carmichael
Bio 110	**Introduction to Oceanography**		
Critical Thinking/ Personal Responsibility F'17		To be completed Sp2019	Sykes
Communication/ Personal Responsibility F'17			Sykes
Bio 115	**Marine Biology**		
Communication/ Personal Responsibility Sp'17		To be completed Sp2019	Sykes
Critical Thinking/ Personal Responsibility Sp'17			Sykes
Bio 120	**The Environment of Man**		
Environmental Responsibility/ Critical Thinking F'18		Completed 2018-2019	Matthews
Bio 130	**Human Heredity**		
Skills & Technology F'18		To be completed Sp2019	Mokili
Critical Thinking/ Communication		Completed 2017-2018	Mokili
Bio 160	**Elements of Human Anatomy and Physiology**		
Communication		Completed 2017-2018	Geller
Critical Thinking			Geller
Bio 180	**Plants and People**		
Communication F'17		Completed 2018-2019	Brothers
Critical Thinking F'17			Brothers
Environmental Responsibility F'17			Brothers
Bio 200	**Biological Statistics**		
Critical Thinking/ Skills & Technology/ Communication		Completed 2017-2018	Hoopes
Bio 205	**General Microbiology**		
Critical Thinking		Completed 2018-2019	White/ Brahmbhatt
Communication			
Skills and Technology			
Bio 210A	**Introduction to the Biological Sciences I**		
Critical Thinking Sp'17		Completed 2018-2019	Carmichael/ Brahmbhatt
Communication Sp'18		Completed 2018-2019	
Skills & Technology F'19			
Bio 210B	**Introduction to the Biological Sciences II**		
Critical Thinking Sp'17		To be assessed in Sp2019 (new instructor)	Bruckman/Leavitt
Communication Sp'18			Bruckman/Leavitt
Bio 215	**Introduction to Zoology**		
Critical Thinking F'17		Only offered in Spring, assessed in Sp2019	Krown/ Furbish
Communication F'18			Krown/ Furbish
Bio 230	**Human Anatomy**		

Communication	Completed 2017-2018	Krown
Critical Thinking		Krown
Bio 231 **Media and Experiences in Human Anatomy**		
Communication	Completed 2017-2018	Brothers
Bio 232 **Experience in Human Dissection**		
Skills and Technology	Completed 2017-2018	
Critical Thinking		
Bio 235 **Human Physiology**		
Critical Thinking F'18	To be assessed in Sp2019	Brothers
Communication F'18		Brothers
Bio 250 **Introduction to Botany**		
Critical Thinking/ Communication/ Environmental Responsibility	Completed 2016-2017	Seiger
Skills and Technology/ Personal Responsibility	Completed	Seiger

SITE SAFETY PLAN

San Diego Community College District
Injury and Illness Prevention Program

San Diego Mesa College

SAFETY POLICY

The Board of Trustees, recognizing the health, safety and well being of its employees is of paramount importance in the management of the San Diego Community College District, affirms its commitment to create and maintain a safe and healthful work environment.

RESPONSIBILITY

The Chancellor has directed *Rita Cepeda* as President of Mesa College to implement the necessary procedures to insure that the District Policy is realized.

SITE SAFETY COMMITTEE

	COMMITTEE ASSIGNMENT	COMMITTEE MEMBERSHIP BY NAME & TITLE
1.	Co-Chair	Vice President of Administration
2.	Co-Chair	Dean, Math & Natural Sciences
3.	Member	Dean, Physical Education & Athletics
4.	Member	Safety Officer, Chemistry Instructor
5.	Member	Instructional Safety Supervisor, Chemistry
6.	Member	Department Chair, Biology Instructor
7.	Member	Instructional Lab Tech, Biology
8.	Member	Department Chair, Art/Drama
9.	Member	Department Chair, Allied Health Instructor
10.	Member	Nurse, Student Health Services
11.	Member	Regional Plant Operations Officer
12.	Member	Reprographics Center Supervisor
13.	Member	Stockroom Supervisor
14.	Member	Accounting Supervisor
15.	Member	Student Services Supervisor
16.	Member	Learning Resources Center Supervisor
17.	Member	Lieutenant, College Police
18.	Member	Department Chair, DSPS
19.	Member	Food Services Supervisor
20.	Member	Bookstore Supervisor
21.	Member	Computing Lab Supervisor
22.	Member	Instructional Lab Tech, Physics
23.	Member	Art Gallery Director
24.	Member	Culinary Arts Instructor (M-Fusion Café)

The Safety Committee, together with other appropriate members and the President of Mesa College shall constitute the Safety Officers of Mesa College.

Duties of Safety Officers

The Safety Officers shall:

1. Conduct formal Inspections of each of his/ her assigned workplaces at least monthly. The inspections shall include appropriate notice of the physical workplace, environmental hazards, work practices, new processes, recent reported accidents, and employee suggestions. The Safety Officer shall make a written report to the site Safety Committee for each inspection consisting of a checklist of hazards appropriate to the workplace together with his/ her recommendations for changes. (Appendix A: Workplace Investigation Report)
2. Train supervisors in their responsibilities under this Site Safety Plan and/or specified plan as required by the regulating agency.
3. Conduct investigations of all accidents that resulted in serious injury; approve or disapprove the inadequacy of supervisor investigations of all other accidents. (Appendix B: Accident Investigation Report). All hazards involving imminent danger to employees, students, or employees shall be reported immediately to the College President, together with a recommendation for abatement.
4. Serve as member of the site Safety Committee.
5. Approve, in consultation with the appropriate supervisor/ manager, requests for accommodations of work duties made under ADA or the workers' compensation laws.
6. Recommend to the site Safety Committee any additions or changes to the workplace safety rules contained in the Employee Safety Manual.

Duties of the Site Safety Committee

1. The site Safety Committee shall meet not less than monthly or as needed.
2. Mandatory agenda items shall be:
    - A review of recommendations resulting from the Safety Officers formal inspections.
    - A review of accident reports and investigations filed since the last meeting.
    - Consideration of all safety related employee complaints or suggestions.
    - Recommend disciplinary measures for failure to observe safe work practices to the College President.
    - Semi annually, to review the site's worker's compensation loss data with the District Risk Manager.
    - Annually, prior to the beginning of the Fall semester, review the Employee Safety Manual for adequacy and make changes or recommendations to the District Safety and Occupational Health Committee, as appropriate.
    - Annually, prior to the beginning of the Fall semester, in consultation with other appropriate District Departments, review and update site Emergency and Evacuation plans and procedures.

3. Direct all hazard abatement dealing with work practices or equipment; liaison with Facilities concerning abatement of environmental or other workplace hazards.
4. Insure that all Supervisors and Managers receive safety training sufficient to their responsibilities under this Plan.
5. As appropriate, publicly recognize superior compliance with the spirit of this Plan by individual employees.
6. Recommend improvements to the District Safety Plan to the District Safety and Occupational Health Committee.

Duties of Supervisors and Managers

The most effective tool for creating a safe and healthy workplace is the properly trained and motivated Supervisor. All supervisors or managers must be trained to the hazards present in their workplace, prior to assuming their duties. They must conduct their supervision of employees with fairness and respect for employees' suggestions and right to a safe working environment.

In this spirit supervisors and managers, working with appropriate staff, shall:

1. Consciously promote a spirit of good safety practice in the employees reporting to them.
2. Be familiar with the contents of the Employee Safety Manual, with particular attention to workplace Safety Rules.
3. Insure that all employees have been sufficiently trained in the proper execution of their duties.
4. At least weekly, conduct an informal inspection of their workplace. Any hazards shall be corrected promptly or reported to the appropriate Safety Officer for action.
5. Conduct informal safety meetings to discuss appropriate safety issues, for example, safety standards, proper work habits, workplace hazards, accident causes, safety rules, emergency procedures.
6. Institute any changes in work practices only after consideration of the safety consequences of the change.
7. Promptly, not less than within 24 hours, and using the prescribed Accident Investigation Report (Appendix B), investigate accidents to determine and eliminate the root circumstances which brought about the accident.
8. Treat requests for workplace accommodations or restricted duties with due regard for the employee's legal rights. Adhere strictly to such accommodations and restrictions when assigning duties.
9. Confer readily with the appropriate Safety Officers.
10. Take appropriate disciplinary measures against employees for deliberate refusal to adhere to safe work practices or Safety Rules. Commend employees for superior compliance.

Discipline

Deliberate performance of an unsafe act or a violation of a Safety Rule will subject the employee to appropriate discipline.

Deliberate performance of any act that places the employee or any other person in imminent danger of grievous bodily harm will result in suspension or dismissal. Any such deliberate act that causes grievous bodily harm will be investigated by the site Safety Committee who will recommend appropriate discipline, including dismissal.

Performance of duties while under the influence of illegal drugs will result in suspension or dismissal.

Hazardous Materials Communication Procedure

The purpose of this Hazardous Communication Procedure (HazComm) is to insure that all hazardous materials used by employees in the performance of their duties are properly evaluated for their hazard, use and control; and that sufficient information about such materials are communicated to employees in such a manner that any risk to their health is eliminated.

For the purposes of this procedure, hazardous materials are those so described by the California Occupational Safety and Health Act, (also known as "the Director's List.") No employee shall be disciplined or otherwise harmed or criticized by the exercising of his/ her rights under this procedure or the California Occupational Safety and Health Act. A copy of this procedure shall appear in each Employee Safety Manual.

Material Safety Data Sheets (MSDS)

Inasmuch as all manufacturers and distributors of hazardous materials are required by federal and state law to describe the hazards and methods of control in the form of a Material Safety Data Sheet (MSDS), all purchases of materials for use in the workplace by an employee or third party contracted employee shall require a properly completed copy of the MSDS upon or prior to delivery of the product. Appendix E is a representative copy of a completed MSDS.

No supervisor shall allow any employee to use or come into contact with any substance containing a hazardous material unless an MSDS has been received by the workplace, placed in the required MSDS book, and the employee trained in the information contained in the MSDS.

If a material is received without an MSDS or if any employee (or his/ her representative) requests access to a MSDS that is not available, the supervisor, acting in consultation with the Safety Officer, will immediately contact the employee whose responsibility it was to purchase the material requesting that a proper MSDS be obtained. That employee shall act on this request in writing as quickly as is reasonable, but in no case more than seven (7) days from the date that the supervisor learned that the required MSDS was missing. If no response is forthcoming within twenty five days, a second written request shall be made and the matter shall be referred to the Safety Committee to act on the District's obligation to inform the State Department of Industrial Relations.

For the purposes of compliance with 8 CCR 5194(d), the District and its employees will rely on the information concerning the physical and health hazards of hazardous materials contained in the MSDS supplied by the manufacturers or distributors of their products.

The designated supervisors for each workplace, (for the purposes of this procedure a workplace is as determined by the site Safety Committee), shall maintain a book, easily and readily available to all employees, containing copies of MSDS's of all products containing hazardous material present in the workplace. The Safety Officers shall audit the completeness of the MSDS book .

Supervisors shall be trained in understanding MSDS by the Safety Officer and shall be responsible for training all employees reporting to them.

Hazardous Materials Containers and Labeling

1. Substances containing hazardous material should be kept in the containers supplied by the manufacturer. If, because bulk purchases of a hazardous substance must be inventoried in more than one location, additional containers must be of like safety quality to the original and duplicates of the manufacturers hazard and warning labels must be prominently attached to the additional containers.
2. In all other cases, if a hazardous material is transferred to a secondary container, the amount may not be more than is necessary for the daily use of a particular employee and the secondary container must remain in the workplace of that employee. Excess materials must be returned to the original container at the end of the employees working day. Such temporary containers do not require warning or hazard labels.
3. All containers of hazardous materials must be prominently labeled, in English, to show:
    1. The identity of the hazardous material(s).
    2. Appropriate hazard warnings
    3. The name and address of the manufacturer.

    Defacing manufacturer's labels is a violation of the law unless immediately replaced with similar information.

Employee Training and Communication

All new employees shall be trained by their supervisor or designee in this Hazardous Materials Communication Procedure and in the proper use and control of hazardous materials prior to their initially performing their duties. Employees shall receive additional training as necessary and, in all cases, when a new substance is introduced into the workplace.

Training may consist of information concerning general classes of hazardous materials rather than specific compounds and may be limited to those materials that the employee may be exposed to regularly or in a reasonably foreseeable emergency.

Training shall include at least the following:

1. Familiarity with this Hazardous Material Communication Procedure. A copy shall be included in the Employee Safety Manual given to all employees.
2. The presence and location of all hazardous materials in the workplace, regardless whether the employees own duties require contact with the materials.
3. The location of the workplace MSDS book and the employee's (or his/her representative's) right to easily access it at any time.
4. Familiarity with the form and information, with particular attention to the hazards represented, protective measures, and emergency procedures, contained in the MSDS's applicable to substances the employee reasonably may come into contact.
5. Explanations of the warning and hazard labels.
6. The employee's right to be protected against discrimination or discipline for exercising any right extended to him under this procedure.

Training shall be documented by the Hazardous Material Training form (Appendix F) and signed by the employee and training supervisor.

Recordkeeping

In accordance with the Hazard Communication Standard of the California Occupational Safety and Health Act:

MSDS's for all substances used in the workplace shall be maintained for 30 years.

Records of employee training shall be maintained for a minimum of three years.

Workers' Compensation

Fire Prevention Program

Emergency and Evacuation Procedures

Bloodborne Pathogens Procedures

BLOODBORNE PATHOGEN PROGRAM

December 6, 1991, the Federal Occupational Safety and Health Administration published the final rule, 29 CFR, Part 1910.1030, Occupational Exposure to Bloodborne Pathogens. Six months later California Occupational Safety and Health Standards Board published changes to Title 8 CCR, Section 5193, Bloodborne Pathogens, proposing a State of California standard relating to occupational exposure to Bloodborne Pathogens. The California standard is nearly identical to the federal standard.

The purpose of the Bloodborne Pathogen standard is to protect workers from bloodborne infectious diseases. Protection is particularly targeted toward employees exposed to agents or occupational situations that could cause accidental transmission of any bloodborne infectious disease in general and both Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) in particular. Examples of CSUSM employees who would fall in this category are public safety officers, biologists, student health care providers, custodians and maintenance workers.

PURPOSE

The purpose of this program document is to address the Occupational Exposure to Bloodborne Pathogen Program, per 29CFR 1910.1030 and Title 8, CCR, Sec 5193.

This program will serve as the written aspect of an Exposure Control Program to reduce the potential for exposure to occupational incidents involving bloodborne infectious disease in general and Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) in particular.

SCOPE

This program applies to all employees who are potentially exposed to human blood or blood components, e.g., serum, or other potentially infectious materials as a result of the performance of their duties. Examples of employees who might be exposed are, Police employees, principle investigators or laboratory technicians performing work with human blood or potentially infectious materials, phlebotomist, custodial and maintenance personnel, contractor's custodial personnel and handlers of biomedical waste products. The definition of "potentially infectious materials" means human body fluids such as semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva or any other body fluid that is visibly contaminated with blood, such as saliva or vomitus. This is especially important in emergency response situations. Public Safety personnel stand the greatest risk because of the emergency nature of their work and the physical confrontations with perpetrators.

TRAINING AND RECORDKEEPING

Each supervisor will insure that the potentially occupationally exposed employees under their supervision will receive initial training at the time of initial assignment and at least annually thereafter. The initial training will be given within 10 days of hire. The initial training shall be recorded on enclosures 1 and 2. These training records will be retained by the supervisor for at least three years from the date on which the training occurred. If there is a change in task or procedures or institution of new tasks or procedures that affect the employee's occupational exposure, additional training will be administered.

Supervisor's and employee's bloodborne pathogen training will include:

1. Informing the individual where a copy of Title 8, CCR, Sec. 5193 is located, and that the regulation is available for employee's review.
2. A general explanation of the epidemiology and symptoms of bloodborne diseases.
3. An explanation of the modes of transmission of bloodborne pathogens.
4. An explanation of the Exposure Control Plan and how an employee can obtain a copy of the written plan.
5. An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
6. An explanation of the use and limitations of methods that will prevent or reduce exposure including appropriate engineering controls, work practices, and personal protective equipment (PPE).
7. Information on the types, proper use, location, removal, handling, decontamination and disposal of PPE.
8. An explanation of the basis for selection of PPE.
9. Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
10. Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
11. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
12. Information on the post-exposure evaluation and follow-up that the District has established to provide care for the employee following an exposure incident.
13. An explanation of the signs and labels and color coding used by the District to identify biohazardous areas and materials.
14. An opportunity for questions from employees about the District's Bloodborne Pathogen Plan.

Medical records will be handled in the following manner:

1. Medical records shall be stored in the Student Health Center.
2. They shall be made available, during normal work hours, to the employee to whom the record pertains.
3. The medical records shall be maintained for the duration of the employee's employment plus 30 years.
4. All medical records shall be kept separate from personnel records and medical records shall be kept confidential.
5. All training and medical records will be made available to representatives from Cal/OSHA, the employee, and employee's representative, with written consent from the subject employee.

HEPATITIS B VACCINATION PROGRAM

Every employee with a job classification listed below will be offered the opportunity to receive the hepatitis B vaccine and antibody titer.

1. Public Safety Officers
2. Custodians
3. Maintenance Worker, Plumber
4. Laboratory Support Technician
5. Faculty who performs work utilizing human blood or other potentially infectious materials
6. Health Services Employees
7. Directed Clinical Practice Students involved in direct patient care

Prior to receiving the hepatitis B vaccine each employee identified above as a potential candidate for exposure to hepatitis will undergo training as outlined in this program manual. The initial training will take place within 10 days of hire or reassignment.

The potentially exposed employee will receive the hepatitis B vaccine at no cost to the employee. Medical contradictions to the employee receiving the vaccine, or if the antibody titer reveals that the employee is immune, are reasons for the employee to not participate in the hepatitis B vaccination program. If an employee refuses to participate in the hepatitis B vaccination program, the Hepatitis B Vaccination Declination form will be duly administered. A copy of the declination form will be retained in the employee's medical record. EH&OS personnel will interview the declining employee to determine the employee's understanding of the ramifications of the employee's decision to not participate in the hepatitis vaccination program. A copy of the Hepatitis B Vaccination Declination form is included as Enclosure 3 of this publication.

POST-EXPOSURE EVALUATION AND FOLLOW-UP

All employee "Exposure Incidents" will be reported to the Safety Officer as quickly as possible. An "Exposure Incident" is a specific eye, mouth, other mucous membrane, non-intact skin, or penetration by a blood, or potentially infectious material, contaminated needle, knife, scalpel, micro-slide or pipette incident that results from the performance of an employee's duties. The employee's immediate supervisor will complete the, Accident, Injury & Occupational Illness Investigation Form,

The Safety Officer, in conjunction with the appropriate supervisor or manager, upon receiving the Accident, Injury & Occupational Illness Investigation Form, will schedule a confidential medical evaluation and follow-up immediately for the exposed employee.

The Safety Officer will conduct an exposure incident investigation to include:

1. Documentation of the route(s) of exposure, and the circumstances under which the exposure incident occurred.
2. Identification and documentation of the source individual if applicable to investigation.

The Safety Officer will insure, when feasible, that the source individual's blood is tested for hepatitis B virus and human immunodeficiency virus infectivity. Local police, District police units assistance in locating the source individual may be required. Local Public Health departments may be contacted to assist in locating and obtaining a blood sample from the source individual. The results of the source individual's testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual by the treating physician.

As part of the injury investigation, the Safety Officer will insure that the exposed employee's blood is collected and tested for HBV and HIV as a baseline. The exposed employee's consent is required for HIV serologic testing. If consent is not given at the time the blood sample is obtained, the sample shall be preserved for as long as possible so the employee can have the opportunity to give consent for HIV baseline testing. Any further baseline blood testing may be requested by the employee's or the District's physician at the District's or District's health plan provider's expense.

Post-exposure prophylaxis, counseling, reporting and evaluation of reported illness will be conducted by either/or the employee's or District's physician.

1. A copy of Title 8 CCR, Sec. 5193, will be provided to the treating physician and the exposed employee.
2. A description of the exposed employee's duties as they relate to the exposure incident will be provided to the treating physician.
3. A copy of the Form IIPP-5 will be provided to the treating physician.
4. Copies of all medical records available to the District will be made available to the treating physician, upon request.

The physician's post-exposure evaluation and follow-up written report to the District shall contain an opinion whether hepatitis B vaccination is indicated for the employee, if the employee has received such vaccination, if the employee has been informed of the results of the full evaluation and, that the employee has been informed about medical conditions resulting from exposure to blood or potentially infectious materials which require further evaluation or treatment. All other findings or diagnoses shall remain confidential and shall not be included in the written post-exposure evaluation report.

COMMUNICATION OF HAZARDS TO EMPLOYEES

Biohazard labels will be affixed to the containers of biomedical waste. The containers may be stored in a refrigerator or freezer with a temperature of less than 32deg. F for up to 90 days. If biomedical waste is stored at a temperature greater than 32deg. F, the storage time period is reduced to no more than 7 days. The label shall contain the international symbol for biohazard and shall have "San Diego Community College District, San Diego, CA 619 584 6500" printed on the label. Biohazardous waste that has been properly autoclaved or otherwise sterilized, may be disposed either as sewage or normal waste. Sharps (scalpels, pipettes, micro-slides, broken glass and needles/syringes) must be placed into a rigid, liquid tight container marked with the biohazard label. This sharps container must be disposed through an authorized biohazard/biomedical waste broker. If the sharps container does not contain organic putrefying material, it may be stored above 32deg. F for as long as it takes to fill a container to the indicated full level. If the container contains organic putrefying material, the retention time period is the same as for the biomedical waste referred to at the first of this paragraph.

The international biohazard sign shall be posted at the entrance to work areas. The sign shall contain:

1. The name of the infectious agent.
2. Special requirements for entering the area.
3. Name and telephone numbers, both work and home, of the laboratory director, principle investigator or person-in-charge of the area where biomedical/biohazardous waste is stored.
4. The biosafety level designation of the area where the biomedical/biohazardous waste is stored must be posted on the sign.

The room where biomedical/biohazardous materials are stored will be kept locked or otherwise monitored to discourage unauthorized entry.

EXPOSURE CONTROL

Supervisors shall insure that identified individuals:

1. Receive training on the hazards of bloodborne pathogens.
2. Are provided engineering controls, when possible.
3. Use safe work practices.
4. Use indicated personal protective equipment (PPE).
5. Are provided a copy of this program.

If the nature of the task, activity or job requires direct contact with human blood or other potentially infectious materials to which Universal Precautions apply, PPE shall be available and worn as outlined in Enclosure 5 of this program. Use of PPE will not be used in the exposure determination process. If an activity is performed without blood exposure, but exposure could occur in an emergency, the PPE shall be available.

Universal Precautions are intended to supplement rather than replace routine infection control recommendations, such as hand washing and use of gloves to prevent contamination of hands. Universal Precautions, in part, assume that all human blood, blood products and other potentially infectious materials are infected and present a hazard to anyone being exposed to the agents. Consequently, if contact with infectious agents is possible, the necessary PPE must, either be worn, or be immediately available.

Surgical or examination rubber or plastic gloves shall not be washed or disinfected for reuse. They also should not be used when visibly soiled, torn, punctured, or when their ability to function as a protective barrier is compromised. Housekeeping gloves may be used as a physical barrier against contamination. They may be washed, disinfected and reused, but checks for damage are just as important with housekeeping gloves as it is for surgical or disposable plastic gloves. Masks and face or eye protection shall be worn whenever splashes, sprays, splatters, or droplets of blood or other potentially infectious material may be generated and there is potential for eye, nose and/or mouth contamination.

Appropriate protective clothing, such as aprons, lab coats or gowns shall be worn if the potential for soiling the employee's street clothing exists. Closed shoes will be worn as part of the protective clothing ensemble.

Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses are prohibited in laboratories and other work areas supporting laboratories. Food and drink shall not be stored in refrigerators, freezers, or cabinets within laboratories.

To prevent injuries caused by needles, scalpels, and other sharps, employees should not recap, bend or attempt to cut needles from disposable syringes. They should be placed directly into the sharps container. Rigid sharps containers shall be colored red and labeled with the word "BIOHAZARD," or will have a biohazard label.

Although saliva has not been implicated in HIV transmission, to minimize contact in emergency mouth-to-mouth resuscitation situations, mouthpieces, resuscitation bags, or other ventilation devices shall be available to the person who will render the emergency care.

Pregnant employees could not only receive an infection from handling human blood products and potentially infectious materials, but could place the infant at risk of infection resulting from perinatal transmission. Therefore, pregnant employees within the "at risk" job classifications should be especially familiar with and strictly adhere to precautions to minimize the risk of HIV and HBV transmission.

The worksite will be maintained in a clean and sanitary condition. An appropriate written cleaning schedule will be kept with the method of decontamination determined by location within the facility, type of surface to be cleaned, type of soil present and the tasks and procedures being performed. All equipment and environmental surfaces shall be promptly and properly cleaned and disinfected after contact with human blood or other potentially infectious material. Gloves will be worn during cleaning and disinfecting procedures.

Specimens of human blood or other potentially infectious materials shall be placed in a closeable, leak proof, container with biohazard labeling prior to being stored or transported. If outside contamination of the primary container is likely, then a second leak proof container that is biohazard labeled shall be placed over the outside of the first container and closed.

After sterilizing liquid or semi-liquid potentially infectious material, the material may be disposed of by pouring down a sanitary sewer. When sterilizing petri or culture plates, place the open plates into a metal container. Place enough open plates to ¾ fill the metal container. Add enough water to metal container to fill ¼ of the container. When sterilizer cycle is complete and the inside indicator device confirms a complete sterilizing cycle, remove the metal container with oven mittens (to prevent burns) and decant the liquid and semi-liquid material down a sanitary sewer drain. The remaining plates may be discarded into the normal laboratory waste stream. Flush the sanitary sewer drain well after pouring the liquid into the drain. Because of the extra water in contact with the plates, an extra time factor may have to be added to the total sterilizing cycle. To insure the liquid in the bottom of the metal container has reached the necessary temperature, place a temperature indicator device into the bottom of the metal container at the beginning of the sterilizer cycle. If either of the temperature indicators inside the sterilizer fail to indicate that the sterilizing temperature was achieved, the entire sterilizer load will be re-autoclaved until the necessary temperatures have been achieved.

PPE shall be maintained by the District. Reusable PPE, e.g., lab coats, household gloves, shall be kept clean and stored in the area where it is necessary for PPE to be worn. All PPE will be removed prior to leaving the work area.

Sharps containers are to be properly marked with the international biohazard symbol. Sharps, even after sterilization are considered to be a biomedical waste. Sharps will always be disposed of properly in the designated sharps container. Employees should cease using a sharps container when the sharps container is at the ¾ full level. Sharps should never be forced into a container. Employees should never attempt to recap needles manually unless a one hand technique is utilized. Prior to disposal, sharps containers are to be sealed.

SPECIAL PRACTICES

Laboratory doors shall be kept closed when work is performed on bloodborne pathogens. The area is to be posted with the biohazard sign. See Enclosure 6 for an example of the biohazard sign. Access to the work area shall be limited to authorized persons. Only persons trained in biohazards may be authorized to enter work areas and animal rooms. Inside the laboratory, all activities involving human blood, other potentially infectious material, and infected animals will be conducted inside a biological safety cabinet. No work with these potentially infectious materials shall be conducted on the open bench. One exception is medical microscopy conducted in a medical environment. Vacuum lines shall be protected with liquid disinfectant traps and high-efficiency particulate air (HEPA) filters that are checked annually when the biosafety hoods are certified.

TRANSMISSION OF INFECTIOUS PATHOGENS DURING CPR

Special attention should be given to the use of disposable airway equipment or resuscitation bags and the wearing of gloves when in contact with blood or other potentially infectious materials. Clear plastic face masks with one-way valves are available for use during mouth-to-mask ventilation. These masks provide diversion of the victim's exhaled gas away from the rescuer and may be used by health care providers and public safety personnel properly trained in their use during two-person rescue to replace the mouth-to-mouth ventilation technique. Such devices require two hands to secure a proper face seal and to maintain an open airway. The user of this device must be specially trained in the correct use of this device.

This program document was compiled from information extracted from Title 8, CCR, Section 5193 and 29 CFR Part 1910.1030.

Bloodborne Pathogen Program

GROUP TRAINING DOCUMENTATION
EMPLOYEE TRAINING SIGN-UP SHEET

Date

Name of Trainer

Subject(s) Covered

Training Aids Used

Work Location/Job Safety Class(es) Included

PRINT NAME SIGNATURE

INDIVIDUAL EMPLOYEE TRAINING DOCUMENTATION

INITIAL TRAINING

Name of Trainer_____

Training Subject_____

Training Methods Used (lecture/demonstration)

Name of Employee_____

Date of Hire/Assignment

I,_____, hereby certify that I received training as

(PRINT EMPLOYEE POSITION)

in the following areas:

The potential occupational hazards in general and in the work area associated with my job assignment.

The Safe Practices which indicate the safe work conditions, safe work practices and personal protective equipment required for my work.

The hazards of any chemicals to which I may be exposed and my right to information contained on material safety data sheets for those chemicals, and an understanding of this information.

My right to ask questions or provide any information to the employer on safety, either directly or anonymously, without any fear of reprisal.

Disciplinary procedures the employer may use to enforce compliance with Safe Practices.

I understand this training and agree to comply with the Codes of Safe Practices for my work area.

Employee Signature Date _____

HEPATITIS B VACCINATION DECLINATION
(MANDATORY)

"I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccine, at no charge to myself. However, I decline hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me."

Signature of Employee Date Signed _____

Signature of Witness Date Signed _____

San Diego Community College District
Injury and Illness Incident and Investigation Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.
See CCR Title 8 14300.29(b)(6)-(10)

THIS FORM IS NOT TO BE FILLED OUT BY THE INJURED EMPLOYEE!

SEND A COMPLETED COPY OF BOTH PAGES OF THIS FORM TO RISK MANAGEMENT, ROOM 385, DISTRICT OFFICE, WITHIN 24 HOURS OF THE INJURY.
PLEASE EMAIL OR FAX A COPY TO (619) 388-6898 THEN SEND THE ORIGINAL.

INFORMATION ABOUT THE EMPLOYEE:

Full Name **Date of birth** /

Street **Date of hire** /

City State Zip **Department**

Social Security # **Position**

Telephone # **Male:** ☐ **Female:** ☐

INFORMATION ABOUT THE PHYSICIAN OR OTHER HEALTH CARE PROFESSIONAL:

Name of the physician or other health care professional:

If treatment was provided away from the worksite, where was it given?

Facility:

Street:

City: **State:** **Zip:**

Was the employee treated in an emergency room? Yes ☐ No ☐

Was the employee hospitalized overnight as an in-patient? Yes ☐ No ☐

INFORMATION ABOUT THE ACCIDENT OR ILLNESS:

Injury/Illness: Date **Time** **AM** ☐ **PM** ☐ **Check if time unknown** ☐

Date Injury/Illness reported by employee

Time employee began work **AM** ☐ **PM** ☐

Where did injury/illness occur?

Did employee leave Work? Yes ☐ No ☐

Date returned to work

If employee died, when did death occur? Date of death

What was the employee doing just before the incident occurred? Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. *Examples: "Climbing a ladder while carrying roofing materials"; "Spraying chlorine from a hand sprayer"; "Daily computer key-entry."*

Were the tools, equipment or materials used by the employee at the time of the incident in good condition? Yes☐ No ☐ If No, describe the specific deficiencies.

What happened? Explain how the injury occurred. Examples: "When the ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time".

What was the injury or illness? Tell us the part of the body that was affected and how it was affected; be more specific than "hurt," "pain" or "sore". *Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome".*

What object or substance directly harmed the employee? *Examples: "concrete floor"; "chlorine gas"; "computer".*

Were there any workplace conditions, practices or lack of protective equipment that contributed to the accident? Yes☐ No ☐ **If Yes, describe the deficiencies.**

Will a new workplace Safety Rule be required? Yes☐ No ☐ Please explain:

Was the unsafe condition, practice or equipment problem corrected immediately? Yes☐ No ☐
What corrective actions have been taken to prevent another occurrence?

Witnesses if available:
Name Phone number
Name Phone number

Supervisor/Manager (Primary Investigator):
Title Date

Safety Officer
Title Date

Orig: Risk Management Office Copy: President / Vice Chancellor Copy: Business Services Office Copy: File