

Instructional Program Review Report

Sierra College, 2018-19

Department/Program Name: Biological Department of Sciences

Date Submitted: February 20, 2019

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Ideally, the writing of a Program Review Report should be a collaborative process of full-time and part time faculty as well as all other staff and stakeholders invested in the present and future success of the program at all sites throughout the district. The Program Review Committee needs as much information as possible to evaluate the past and current performance, assessment, and planning of your program.

Please attach your Department Statistics Report (DSR) and your planning report with your Program Review.

1) Relevancy: This section assesses the program’s significance to its students, the college, and the community.

1a) To provide context for the information that follows, describe the basic functions of your program.

The Biological Sciences Department serves three main groups of students: non-majors, majors, and pre-allied health students. The majority of our non-major classes provide students with basic information about biology and aim to foster a greater understanding of the role humans play in ecosystems. Other non-major classes provide credit for students who are part of our Watershed Ecology program, though these same students may be biology majors as well. These classes function to prepare those students for careers in the watershed ecology field. The non-major classes also include our field course program, which is designed to provide participants with a greater understanding of ecosystems. The major courses are designed to be in alignment with the lower division requirements for degree transfer. These classes lay the foundation of biological understanding for future courses in the subject. The pre-allied health courses are designed to fulfill the entrance requirements for nursing school applicants, allied-health students, and to provide pre-medical students with courses they will need to complete their four- year degree and apply to medical school.

1b) How does your program support the district mission, as quoted below?

“Sierra College provides an academic environment that is challenging and supportive for students of diverse backgrounds, needs, abilities, and goals with a focus on access, equity, student-centered learning, and achievement. The college is committed to

practicing diversity and inclusion, and recognizes that a diverse and inclusive curriculum and workforce promotes its educational goals and values. Institutional learning outcomes guide the college's programs and services, encouraging students to identify and expand their potential by developing knowledge, skills, and values to be fully engaged and contributing members of the global community. Sierra prepares students by offering Associate's and transfer degrees, certificates, career and technical education, foundational skills, as well as lifelong learning and enrichment."

Please include an analysis of how your program supports ISLOs (Institutional Student Learning Outcomes): Communication, Technology and Information Competency, Critical and Creative Thinking, and Citizenship?

The Biological Sciences program addresses diverse student goals by offering general education courses, major courses for transfer students, pre-allied health courses, and career training through our WET and internship programs. In 2015, we developed the Biology AS-T degree for students wanting to transfer in biology. We offer online and hybrid courses that enable us to reach students who may not otherwise be able to travel to campus. We offer day, evening, and weekend sections to accommodate a variety of student's schedules. In order to increase student access to our most impacted courses we have doubled the number of anatomy, microbiology, and physiology sections from twenty-one to forty-two sections per semester in the last three years as these courses are high demand pre-allied health prerequisites. The department has also developed webpages for our microbiology and anatomy students to view images of slides and lab models outside of class time.

The Biology Program supports ISLOs through encouraging students to become engaged and contributing members of the community by promoting an understanding and appreciation for the diversity of life and the responsibilities humans have to maintain and protect ecosystems. Critical thinking is developed through inquiry, application of the scientific method, and analysis of data.

1c) Program offerings align with which of the following mission categories; check all that apply:

- Transfer Career Technical Education
 Basic Skills Personal Development/Enrichment Lifelong Learning

1d) Please analyze your department's performance in supporting the mission categories marked in 1c above. Please provide evidence in support of this analysis, including data from the dashboard relevant to this evaluation; relevant data includes the equity and diversity goals of the department and College.

If any of the following apply to your program, please address them in your analysis.

- Degrees, certificates, and/or licenses your department has generated:
 - The alignment of these awards with the district’s mission and/or strategic goals. (See the district “Awards Data File, available from Research and Planning, for your numbers).
- Job placement or labor market information for your program’s awards and licenses.
- The contribution your program makes to student transfer.
- Participation in basic skills programs.

As stated above, the Biological Sciences program can be divided into three main branches. The allied health and majors program supports transfer programs as it provides the prerequisites that students need to transfer into biological science, nursing or pre-medical programs. Our program also provides the possibility for students to complete a variety of degrees, including AS Biology, AS-T Biology, AS Environmental Studies & Sustainability, and AS Natural Science. The non-majors program also contributes to the transfer of students into other majors as it provides those students with the ability to complete their general education requirements. The biological sciences program also provides classes that are part of the Watershed Ecology AS degree or the Watershed Ecology Certificate Program. This program was developed under consultation with employers to ensure that students who complete the Certificate leave the program ready to enter the workforce. Our program also provides access to lifelong learning programs and enrichment through our field studies program. These programs provide our students, as well as community members, with access to short courses that expose them to the environments of California and build a greater sense of stewardship towards the environment. In fact, the biological sciences department has chosen to make the identification of contemporary social, ethical and biological issues and the responsibilities of an informed individual as one of its five program outcomes.

The number of AS Biology degrees awarded is lower than the previous program review and seems to remain constant with no upward or downward trends over the last 3 years. Numbers of AS Biology degrees awarded from 2015-2018 was 81. On the other hand, there is an upward trend in the number of AS-T Biology degrees awarded which in 2015-2016 was 4, in 2016-2017 was 17 and in 2017-2018 was 22. There is also a steady trend in degrees awarded in Watershed Ecology. These data, while useful to know, would be better able to provide the Department with an assessment of its programs if we had a better idea of the number of students who are entering our programs with the intention of getting a degree.

- 1e) Optional Additional Data: Describe any other relevant contributions of your program to the district mission, goals, outcomes, and values not incorporated in the answers above. Examples include but are not limited to contributions to student equity and success, diversity, campus climate, cultural enrichment, community ties, partnerships and service, etc. Include specific data and examples.

The Biological Sciences department is active in promoting sustainability. We are the home of the ECOS club, which actively works to get students involved in community-based

projects such as Earth Day and were also recently responsible for the addition of reusable water bottle filling stations on many of our drinking fountains. NCC has developed a Garden Club with biology faculty as advisors. Still at the beginning stages this club contributes to food programs on campus for food insecure students. The department, along with ECOS, has done extensive work to promote sustainability and stewardship on campus. We maintain our own website and a newly developed Virtual Anatomy Canvas site that is linked through the college website. This biology website maintains information on the expectations of many of our courses, contact information for our faculty and staff and study materials for students. Virtual Anatomy contains an extensive collection of specimen slides that our allied health students can access from home to aid in their studying. Our department also works closely with the Natural History Museum, as many of our faculty are part of that committee. The museum provides many tours each year for local elementary school children mostly led by our students. The museum also provides monthly lectures that serve as enrichment to our students and community members alike. Many of our faculty and staff are also part of the yearly production of Dinosaur Day. The Department works with the museum to maintain displays in Sewell Hall that provide ancillary learning opportunities for our students. In more recent years, many of our faculty have contributed to the various phases of Reengineering 4 Success (R4S). Our faculty and staff also respond to requests and answer biological questions for community members and teacher that contact the department.

2) **Currency: This category assesses the currency of program curricula as dictated by Title 5 and the currency of efforts in meeting accreditation standards as well as improving pedagogy and engaging in professional development.**

2a) Curriculum: Comment on the currency of your program's curricula, including discussion of any recent or projected changes. Please describe your process and the criteria, including state and/or professional mandates, for evaluating and revising curriculum, including the use of SLOs.

As relevant, please address the impact of the development of MAPs, Interest Areas, and Guided pathways on curriculum and program planning and assessment

The Biological Sciences Department has a curriculum that is at 100% currency. Each course, or group of related courses, has been assigned to a single full-time faculty member to act as the lead faculty, charged with overseeing the curriculum of the course. These lead faculty meet regularly with other teaching faculty to discuss the course curriculum, coordinate writing and assessment of CSLOs, and the implementation of any necessary changes to the curriculum. The following changes have occurred since the last program review (2016):

- BIOL 001 (General Biology)- chemistry prerequisite changed from high school or college-level chemistry to college-level only beginning in Fall 2017
- BIOL 005 (Human Anatomy)- units increased from 4 to 5 beginning in Fall 2018

- BIOL 005X (Success Anatomy)- new 1-unit course added in Fall 2018. This is an optional course for students concurrently enrolled in BIOL 005 to gain a deeper understanding of course material through discussions focused on anatomical concepts, terminology, and the implementation of anatomical knowledge to clinical and problem solving situations.
- BIOL 0017B (Ecology of the Sutter Buttes)- new 0.5-unit course added in the Fall of 2018.
- BIOL 035 (Introduction to Entomology) – offered yearly beginning in Fall 2017, after a long absence from the schedule, and in a new 3-unit format that meets CSU and UC general education requirements.

Faculty in the Biological Sciences Department have participated in meetings with faculty from other departments, as well as academic counselors, within the STEM Interest Area to discuss the impacts of MAPS, Interest Areas, and Guided pathways on our curriculum. Communication between faculty and designated academic counselors has been facilitated by these meetings. These meetings will be held on a regular basis as these programs develop.

2b) Student Learning Outcomes Assessment: Analyze your program’s assessment of course outcomes, analysis of results, and improvements/changes made to the program as a result of this assessment. Please provide specific data and analysis in the space provided.

The Biological Sciences Department has regularly participated in the assessment of both Program Student Learning Outcomes and Course Student Learning Outcomes, as well as Institutional Student Learning Outcomes. The Department has identified five PSLOs; all five of these have been assessed since our last program review. The Department currently has 52 active courses that can be offered. The majority of these courses (42 of the 52) have 4-5 CSLOs associated with them. The Department has developed a rotating schedule to assess CSLOs for each class at least once every three years. In the past five semesters (Fall 2016-Fall 2018), 38 of our courses have assessed CSLOs. Most of the courses for which we have not recently assessed CSLOs are field courses that have not been recently offered. As our budgets have increased from the restrictions of previous years and transportation monies have become available again, we are starting to regularly schedule field courses, and to rotate those offerings. We will assess CSLOs for those field courses as we are able to offer them.

At the beginning of each semester the Biological Sciences Department faculty meet to discuss the results of our assessments of PSLOs and CSLOs, and to determine if any changes to curricula or assessment methods are needed.

In the space below, please describe or attach the cycle you have developed for outcomes assessment.

Courses are assessed every 3 years or the next semester the course is offered if beyond 3 years such as certain field courses. Each CSLO meets to an extent one or more of the following PSLO's.

- PSLO A Apply the scientific method to design, conduct experiments, and test hypotheses.
- PSLO B Conduct scientific literature review, critically evaluate, and interpret biological information.
- PSLO C Outline the organization and integration of biological systems.
- PSLO D Apply laboratory and/or field skills necessary to answer biological questions.
- PSLO E As an informed and responsible individual, evaluate contemporary biological issues that have social and/or ethical implications.

2c) Professional development: Please describe how your department's individual and group activities and professional development efforts serve to improve teaching, learning and scholarship.

Please describe your staff development needs based on this analysis.

The faculty and staff of the Biological Sciences Department participate in a wide range of professional development activities. These include the usual Flex Week activities before each semester begins, such as department and division meetings, planning and assessment meetings, Canvas training, safety training, etc. However, professional development continues on a year-round basis. Department meetings and focused curriculum meetings (non-majors, pre-allied health, etc.) are scheduled on an as-needed basis to discuss pertinent topics. Our faculty visit other Sierra classes (earth science, physiology, microbiology, English) to expand the breadth of their knowledge as well as to observe teaching techniques. In the last few years several of our faculty have participated in Sierra College training opportunities such as SC4, Avoiding Bias in the Hiring Process, Sierra Online Summit, training for online teaching, as well as participate in various developmental phases of R4S. Biology faculty have also pursued professional development outside of Sierra College by enrolling in courses in adult learning disabilities, Queer Theory, and classes on ADA accommodations for teaching online. Faculty have also attended workshops and conferences such as Society for Advancement of Biology Education Research (SABER) West Regional Meeting, Dream Catcher Conference, annual meeting of the Northern California Branch of the American Society for Microbiology, CSU Chico's This Way to Sustainability Conference, California Botanical Conference, International Society of Arboriculture Conference, a City of Roseville seminar on reducing fire hazards in suburban forests, and a Placer County Resource Conservation District seminar on forest health, among others. Members of the Department also participate in campus shared governance through Academic Senate, the Facilities Master Plan Task Force, the Equivalency Committee, the Natural History Museum Committee, the FERC committee, the FLEX committee, the Sierra College Press, Presidential Task Force, as well as participating beyond our campus with the classified sent statewide board (4CS).

2d) Optional Additional Information: Please describe and explain any additional information that supports your evaluation of your program's success.

The results of the Department's assessments of CSLOs and PSLOs over the past three years show student success. The criteria for determining mastery or proficiency varied by course, and was determined by the instructor or lead faculty member for each course. Overall, however, the results indicate that our students are acquiring the knowledge and skills that are essential components of each course.

3) Effectiveness: This section assesses the effectiveness of the program in light of traditional measurements.

3a) Retention and Success: Assess and evaluate the three-year trends in your program's data contained in the DSR and analyze any relevant information found in the data dashboard related to retention and success. Please include the results of any relevant outcomes assessments, as appropriate. Address separately the data for on ground and online courses, as well as the data for the campus or centers at which you operate. Please describe any challenges experienced by your program; if you determine that you need to improve the program's performance, please describe how you plan to achieve this goal.

As relevant, please address your program's role in the development of MAPs, Interest Areas, and Guided pathways and the impact of these developments on program planning and assessment.

Overall our department retention is 83.4% for the three-year average from Fall 2015 to Spring 2018. Our departmental success 71.3%. This is close to the District average retention of 86.4% and the district success of 73.9%.

Our lowest success rates appear to be at the Rocklin and NCC campuses, at 70.6% and 70.5%. While success is highest at the Tahoe Truckee campus at 87.3%. Our online success rate is at 70.6%. Most likely the reason for the disparity is that we do not teach "pre-allied health" classes at Tahoe Truckee and we just recently introduced those classes at NCC. Pre-allied health classes tend to be more challenging in general and we often see students who are unprepared entering those courses. To address these issues we have developed preparatory classes to help students to learn how to study for those classes. We have also offered additional open lab times for students to study. We have also worked with the college to identify those students who register as "pre-allied health" to interact with those students early on in order to identify if their career goals are best served by this major. This should decrease enrollment and help to ensure that these students know the expectations for the class before they begin. This should increase success. Additionally, there is currently a single full-time faculty member teaching at the NCC campus. Her work load is extensive. The students would be better served if she had another full-time faculty member working with her at that campus.

As a Division, we struggle to get the success rate of African American students up to the average. The Division currently sits at 43.3% for this group, while the average is at 62.0%. The only other groups to fall below the average are Native American at 57.3% and Hispanic students at 59.7%. We are unsure, at this point, how to increase the success of these students. Planned equity training by the college should help us to identify ways in which we can increase success in these groups.

- 3b) Enrollment Trends: Assess and evaluate the three-year enrollment trends in your program's DSR data. In addition, analyze any relevant information found in the data dashboard related to these trends. Include an analysis of fill rates, wait lists, course cancellations, program completion, and classroom use. Address separately the data for on ground and online courses, as well as the data for the campus or centers at which you operate. Please describe any challenges experienced by the program; if you determine that you need to improve the program's performance in any way, please describe how you plan to achieve this goal.

As relevant, please address your program's role in the development of MAPs, Interest Areas, and Guided pathways and the impact of these developments on program planning and assessment.

Since our last program review, enrollment in biological sciences classes has increased by 28.8%, from 1,433 in Fall of 2015 to 2,014 in Spring of 2018. This is representative of the fact that we have added 29 sections of classes over that time period. Our fill rate as a department currently stands at 94.5% with 6.7% of sections waitlisting. Enrollment trends and fill rate remain high in the Biology Department as we are serving students from multiple Interest Areas. This includes STEM, Public Safety, Health, and Wellness, and Earth and Environment. Under this new level of enrollment, the department is struggling to find qualified instructors to teach courses. Our FTEF has increased from 17.9 in Fall of 2015 to 26.6 in Spring of 2018. Our full-time to part-time ratio has decreased from 68.9% to 55.2% over that same time period. This is a concern as the District's goal to keep at least 50% taught by full-time faculty but with our current trend the ratio will continue to decline as the number of part-time faculty continues to increase. In addition, as our need to hire more part-time faculty increases with the number of sections offered, we are having more difficulty locating enough qualified part-time instructors. Due to lack of instructors we have had to cancel a section in Spring 2019. While the department has been hiring full-time faculty over the last few years, much of that hiring has been for replacements. In Fall of 2015 we had 11 full-time faculty. In Spring of 2018 we have 12. We need to hire more than one full-time faculty per year.

This increased workload is also applicable to our instructional assistants. In Fall of 2015, we had 2 IAs serving 1,433 students. We have hired one additional IA and our enrollment has increased to 2,014. In order to accommodate that increase, we need to hire an additional IA.

3c) Equity: Analyze and evaluate your program’s performance in promoting and/or achieving equity for at risk students and equity in general [or “promoting and/or achieving equity and diversity]. Based on this analysis, describe any plans you have to sustain or improve the program’s contribution to student equity as a central component of student success.

Course success and retention in the Biological Sciences have been only slightly lower than the District average over the past five years, with success rates approaching the District average in the latest report (Fall 2018). In fact, in Fall 2018, success and retention surpassed the District average for the male-identified population. It fell slightly short of average for the female-identified and for “other/non-disclosed” populations.

Course success in the Biological Sciences was higher than average for students with reported disabilities, while course retention was higher than average for veterans. This can certainly be attributed (at least in part) to the excellent support system our DSP&S and veteran students receive at Sierra. Students enrolled in the Foster Youth, EOPS, or CalWorks programs are generally more successful in the Biological Sciences than the District average. It will be interesting to see how RISE students do in our courses once more data are available.

With regards to race/ethnicity, African-American (male and female), Asian (male and female), Filipino (male and female), Hispanic (male and female) and white females had slightly lower success or retention than the District average. However, some of these sample sizes were quite small. Without additional analysis, it is difficult to determine if there is a significant departure from the District average. No data were available for Pacific Islander students. American Indian (N= 4) and white male students (N=304) in Biology courses were just as successful and persistent as the District average.

With the District’s movement in mindful recruiting of historically under-represented students into our programs, we feel that the success and retention of many populations will continue to rise in the Biological Sciences. We are especially hopeful for our RISE and TRiO programs. In addition, we have several faculty hiring committees that are making great strides in hiring practices to ensure that student equity is a forefront in their educational pathway.

3d) Optional information: Please describe and evaluate any additional relevant information supporting the evaluation of your program’s success.

Of the 56 strategies listed on the Department’s ePAR Report, 29 of them have been completed, 20 are in progress, 2 have been abandoned, and 5 are newly identified. Most of the in-progress strategies are on-going efforts, such as the maintenance of partnerships with public and private institutions to help students gain experience outside of the classroom, or the continual cleaning and servicing of lab equipment and updating of lab specimens. Several of the new strategies address the Department goal of providing students with hands-on learning experiences in safe, well-equipped classrooms. They also address an increasing of efficiency in our preparatory areas. We expect many of those in-progress

strategies to remain in that state since are constantly evolving our programs, but are hopeful that our new strategies will be completed as funds become available to address the effects of increasing use in our lecture areas and laboratories. The department is up-to-date in assessing course outcomes and formulating action items to address any areas of concern. We are also up-to-date in curriculum review.

- 3e) Analysis and Planning: Referring to the analysis in 3a-d, to your ongoing planning and assessment documents, and to any relevant information from section 2 above, please describe your program's plans to maintain or increase its effectiveness and analyze and evaluate your efforts to achieve these goals. As relevant, please address your program's role in the development of MAPs, Interest Areas, and Guided pathways and the impact of these developments on program planning and assessment.

Retention and success in the Biological Sciences department has experienced a slight decrease since the last Program Review in 2016. Retention has decreased by 1.6% while success has decreased by 1.7%, meanwhile our enrollment has increased by 28.8% due to the increase in sections being offered. The fill rate continues to remain high at 94.5%. The department will continue to meet the enrollment demands by offering on ground, online, and hybrid courses but there is room for improvement in retention and success rates. With the newly implemented Interest Areas our goal is to collaborate with counselors in STEM as well as counselors in Public Safety, Health, and Wellness as our department offers courses that lead into more than just one interest area. By working closely between these Interest Areas we hope to better prepare our students for the courses in which they will enroll in and in return this should help increase retention and success. In addition, the department will continue to update our ePAR to better serve our students as well as continue to assess SLO's.

- 4) **Resources:** This category assesses the adequacy of current resources available to the program and describes and justifies the resources required to achieve planning goals by relating program needs to the assessments above.

- 4a) Please describe the future direction and goals of your program for the next three years in terms of sustaining or improving program effectiveness, relevance, and currency. Include any relevant analysis of equity goals and the development of MAPs, interest areas, and guided pathways. Please incorporate analysis of any relevant outcome or other data in this description, including any data from the dashboard.

Our main goal over the next 3 years will be to increase our success rates in all of our courses. Biology tends to be a challenging subject for students, but attracts many students, in part due to the prospect of high salaries for many disciplines within the biology field such as nursing, medical doctors, pharmacy, and the biotech industry. Many students are more aware of the potential monetary rewards of the field than the academic rigor, and therefore enter our classes with unrealistic expectations of their potential for success. We will continue to work with Counseling to ensure that students entering our courses are

prepared for the rigor of the science field. Our Department has expanded classroom availability by the construction of modular classroom space next to Sewell Hall, and there has been a surge of incoming students. Our enrollment has increased dramatically in Bio 5, 6, and 7A/B. Planning for Phase 1 of the new Science Building will be occurring within the next 3 years, but should not have an impact on effectiveness, relevance or currency. In the future, this building will not change enrollment figures since the footprint of the new building will be equivalent to the footprint currently occupied, including the portables. We have been able to replace retiring professors and classified employees with full-time replacements.

4b) Please describe and justify any projected requests for additional staff, new or augmented technology/equipment, and additional or remodeled facilities necessary to support these goals. Please incorporate any relevant data related to SLOs, student success, and equity.

Equipment/Technology:

The courses in our Department tend to be equipment intensive. Most of our laboratory sections require the use of technical equipment, models and consumable goods. The normal wear and tear on our equipment and models requires that we periodically replace them with new items. The Department makes every effort to maintain our materials in-house and to reduce the number of consumables we use without sacrificing educational quality. In fact, many members of our Department have written (and annually update) their own lab manuals in order to reduce the amount of supplies and/or equipment that is required. Thus far, our supplies budget has been adequate for this task. Most of our equipment issues in the Department are related to the fact that we are located in an older, more antiquated building, with few modern updates to serve our equipment and needs well. As a result, many of our ePAR requests are related to replacing damaged or worn out equipment and facilities such as lab counters, microscope cabinets, anatomy models, as well as requests to outfit our lecture spaces with “smart” classroom equipment. In addition to converting existing classroom space to “smart” classrooms, there is an on-going need to update the computers and software that we do have in order to keep them functional. The construction of modular lecture and laboratory buildings adjacent to Sewell Hall has increased the Department’s need for equipment and technology. The increase in offered sections has increased our on-going costs for consumable supplies as well as regular replacement of materials due to normal wear and tear.

Facilities:

In the last few years the Biology Department has expanded the number of sections offered each year. Following the hiring of a full-time faculty member at the NCC campus we were able to increase the pre-allied health classes that we offer at the NCC campus. The installation of one modular biology classroom and one laboratory next to Sewell Hall enabled us to increase the number of sections of high demand classes (pre-allied health) beginning in Fall 2016. The total number of pre-allied health (BIO 4, 5, 6, 7A/B, and 8A/B) sections we offered across all campuses in 2015-2016 was 50. This increased to 63 sections in 2016-2017, 90 sections in 2017-2018, and 79 sections in 2018-2019.

Despite this increase in the number of sections, the Biology Department continues to have a high average fill rate. For classes offered in the Biological Sciences Department from Fall 2017 through Spring 2018 the average fill rate was 95%. However, with our current facilities and staffing (see next section), we are limited in our ability to further increase our program. There is a limit to the number of classes we can offer at NCC due to the sharing of some lab space with the Ghidotti program. We also have to limit the number of students who can enroll in microbiology at the NCC campus due to safety concerns.

With the passage of Measure E, monies will be available for the construction of a new science building. A new facility will alleviate many of the challenges posed by the aging structure of Sewell Hall, though this new structure will not be an increase in the amount of classroom space available.

Staff:

Since our last Program Review report in 2016, the Department has had 1 faculty member retire, 1 faculty member return from an administrative position, and has hired 1 faculty member. The Department is also currently in the process of hiring 2 more fulltime faculty. If the current recruitments result in 2 successful hires, that will alleviate some, but not all, of the challenge the Department has faced in finding enough qualified part-time faculty over the past few semesters.

The Biology Department, along with other departments teaching high unit lecture/lab courses, faces an additional challenge with the current loading limit on part-time faculty of 65% of a full-time load. Excluding the 0.5-2 unit field courses (BIOL 16/17/23), over the 2018-2019 academic year, 77% (fall) and 81% (spring) of our Department's offered sections have a high enough loading value that a part-time instructor can only teach one such section. While we do have some 3-unit lecture courses which could be added to the load of a part-time instructor teaching a 4-unit lecture/lab courses, these 3-unit courses made up only 13% (fall) and 10% (spring) of our offered sections. Additionally, at least half of those 3-unit lecture sections each semester are scheduled as online courses, and not all part-time faculty are approved to teach in the online format.

In previous years exceptions to the 65% loading limit (up to 68%) for part-time faculty were more frequent, which made it easier to staff all sections. Many people in the Department, Division, and elsewhere on campus have reached out to colleagues at other schools as well as other venues to recruit more part-time applicants, but we still have a very small pool of qualified applicants who can successfully teach the biology curriculum with sufficient rigor to adequately prepare our students for success in reaching their educational goals. In order to avoid cancelling sections the department has been either hiring part-time faculty who are not the most qualified to teach at our standard or split lab sections between two faculty members to keep from canceling the class without exceeding the faculty loading limit. The current economy, along with local discrepancies in lecture/lab pay rates and loading limitations makes it a challenge for Sierra College to attract enough qualified part-time instructors.

The continuing demand from students for access to biology courses, especially the lab-intensive pre-allied health curriculum, requires the addition of more faculty and more Instructional Assistant support. Biology courses are regularly taught 6 days a week on the Rocklin campus, from 7:45am to 10:05pm.

The number of classified staff has remained consistent over the last 3 years, though one Instructional Assistant has just retired and the Department will need to fill this position. With the expansion of the pre-allied health curriculum at the NCC campus, the requirements of the Ghidotti Early College High School program at the NCC campus, the lab classes at the Tahoe Truckee campus (facilitated by the Instructional Assistants from the Rocklin campus), and the greatly increased lab sections at the Rocklin campus our Instructional Assistants are constantly busy and often stretched too thin.

To meet all these demands we continue to submit faculty and staffing requests through ePAR. These requests are for the Rocklin campus and include 1 full time non-majors faculty, 1 full time anatomy and physiology faculty, 1 full time Instructional Assistant replacement, and 1 additional full time Instructional Assistant.

4e) Please check the appropriate boxes in the chart below indicating the general reasons for the resource requests described above (please check all that apply):

| Function/R ole | Maintenan ce | Developm ent | Growt h | Safety | Outco mes | Other success measures | No Requests |
|-------------------|-----------------|-----------------|------------|--------|--------------|---------------------------|-------------|
| X | X | | X | X | | | |

5) Summary/Closing

- 5a) Based on the analysis above, briefly summarize your program's strengths, weaknesses, opportunities, and challenges.

The Biological Sciences Department is strengthened by its cohesion. Faculty and staff work together, as a single unit, to ensure that we provide the best possible learning environment for our students. Our program offers a variety of courses that meet diverse student needs: transfer curricula for science majors and non-majors, career-required courses for pre-allied health students, and specialty and field courses that appeal to both traditional students as well as life-long learners. The Department is proud of our pre-allied health program, with its opportunities for students to work with cadavers and the depth and breadth of the microbiology curriculum, both of which are unparalleled by any other community college in the region. The Department also offers a strong program for science majors as we offer a course sequence which provides a broad survey of cellular and organismal biology, while providing both an evolutionary as well as an ecological perspective. One weakness the Department has is the variation in curricular diversity among the three campuses – Rocklin, NCC, and Tahoe Truckee. The small student body at Tahoe Truckee precludes the offering of the full range of biology courses at that campus, but through online courses we are attempting to make as much of our curriculum available to those students as is practical. The curriculum at the NCC campus continues to expand.

A major continuing challenge has been the increasing demand from students for access to certain courses. Though we have seen a shift in the number of nursing majors and biology majors due to the more recently added major options such as biology transfer, allied health pre-nursing, and allied health general there is still a high demand for several of our courses, especially BIOL 1, 4, 5, 6, and 11. Most of these fill during priority registration, often within the first 2-3 days of priority registration. With the recent construction of modular classroom and laboratory space next to Sewell Hall, there has been an increase in courses offered but the Department is still met with challenges as the district continue to expand. As the department grows there is a greater demand for additional support from Instructional Assistants and an immense need for qualified part-time faculty.

Another ongoing challenge the Biology Department faces is the age of Sewell Hall. At 50+ years old, the facilities simply require more maintenance and repairs to remain functional. With Measure E recently passing, monies will be available for the construction of a new science building but it is unclear when construction of the building will take place. In the meantime, the Department is committed to remaining involved in ensuring that Sewell Hall remains a safe and functional educational environment.

5b) How has the author of this report integrated the views and perspectives of stakeholders in the program?

This report was discussed through email and at Biology Department meetings. Various faculty participated in writing sections of the report, and many others contributed data used in writing the report. The final draft was emailed to all members of the Department (classified staff, fulltime faculty and part-time faculty) for review and comment before final submission.