

Program Review

Department of Biological Sciences

Associate of Science Degree
Biological Science Emphasis

5/10/2017

Table of Contents

The Mission of Biological Sciences.....	p-1
Program and Course Assessment in Biological Sciences	pp 2-5
Data Sets for Academic Appraisal.....	pp 6-12
Chairs Summary and Action Plan.....	pp 13-14
Supplemental Narrative Questions for Academic Appraisal.....	Appendix A
Profiles of Full-time Faculty.....	Appendix B

The Mission of Biological Sciences at CSN

The Mission of Biological Sciences is threefold:

1. Devise the curriculum of, and provide quality instruction for, courses that directly support programs in the Ralph and Betty Englestad School of Health Sciences (HS).
2. Devise the curriculum of, and provide quality instruction for, the Associate of Science Degree – Biological Sciences emphasis (BIOL-AS), including courses that fulfill the Special Program Requirements.
3. Devise the curriculum of, and provide quality instruction for, courses that satisfy the Natural Sciences component of the General Education (Gen Ed) Requirements for Associate of Science (AS), Associate of Arts (AA), Associate of Business (AB), and Associate of Applied Science (AAS) degrees.

These goals, which are listed in the order of importance, guide all decisions on course offerings, scheduling of courses, assignment of full- and part-time faculty to teach courses, and allocation of monetary and material resources. All three goals support CSN's mission to foster cultural and scientific literacy, while helping students achieve their educational, professional, and personal goals.

Courses that directly support HS programs, hereafter referred to as HS prerequisites, are BIOL 189 Fundamentals of Life Science, BIOL 223 Human Anatomy and Physiology I, BIOL 224 Human Anatomy and Physiology II, BIOL 251 General Microbiology, and BIOL 214 Molecular Processes. These courses provide basic knowledge that HS students must acquire to complete the Special Program Requirements of their respective HS degrees or certificates.

The BIOL-AS is a general transfer degree for students planning to complete a baccalaureate degree in biology or a closely related field. Courses that support the Core Special Program Requirements of the BIOL-AS are BIOL 196 Principles of Modern Biology I and BIOL 197 Principles of Modern Biology II. A third course, BIOL 251H General Microbiology Honors is strongly recommended for the Elective Special Program Requirements. In addition, courses such as BIOL 211 Introduction to Field Biology and the newly created BIOL 273 Research Experience provide students with opportunities for undergraduate research, which is increasingly important for many four year degrees in the biological sciences.

Courses that satisfy the Natural Sciences component of the Gen Ed Requirements for AS, AA, AB, and AAS degrees are BIOL 101 Biology for Non-Majors, BIOL 113 Life in the Oceans, BIOL 116 Natural History, BIOL/NUTR 121 Human Nutrition, BIOL 122 Desert Plants, and BIOL 202 General Botany. These courses can also be used to satisfy the Elective Special Program Requirements of the BIOL-AS.

Program and Course Assessment in Biological Sciences

The Department of Biological Sciences consists of trained scientists (Appendix B), all of whom have experience with scientific research. Hence, using data to inform decision making is second nature to the Biological Sciences Faculty; and the department has a long tradition of formal and informal assessment. Program and course assessment are currently guided by the goals laid out in the CSN Assessment Plan. The department goes above and beyond the requirements of this plan in several areas such as assessment of BIOL 189.

Program Assessment

According to the CSN Assessment Plan, Biological Sciences must submit a three year assessment plan to the Office of Assessment. The plan must include the following:

1. Clear and measurable student learning outcomes (academic programs) or student learning support outcomes (academic support programs).
2. Authentic assessment methods that assure measurability of each outcome.
3. Established performance criteria for each assessment method benchmarking successful achievement of each outcome.
4. An assessment schedule for implementing assessment activities.
5. Completion plan for Phase I of Outcome Alignment to provide evidence of how CSN program courses support student learning and student achievement of program student learning outcomes.

Biological Sciences submitted its three year plan in October, 2016. The plan explains the methods used to assess the Biological Sciences Program and presents a schedule for reviewing specific courses that directly support the program. At CSN, a “program” is equivalent to an academic degree. Thus, assessment of the Biological Sciences Program entails assessment of the student learning outcomes (SLO’s) for the BIOL-AS. The SLO’s of the BIOL-AS are:

1. Summarize and explain biological diversity and similarity of organizational levels ranging from molecules to communities.
2. Integrate knowledge of biology, biological methods and contextual issues, and be able to articulate these in verbal and written form.
3. Incorporate knowledge of scientific methods and the relationships among theory, experiments and analysis and apply these to a problem or issue in biology.
4. Demonstrate knowledge of basic laboratory safety procedures and experimentation skills.

Currently, achievement of program SLO’s is assessed in a “capstone” course, BIOL 197, which is typically taken in the last semester of the program. Results of program assessment are used to evaluate and revise methods of instruction and program design, as well as the method(s) of

assessment. The ultimate goal is to provide a BIOL-AS that transfers seamlessly to UNLV, UNR, NSC, GBC or other baccalaureate-level institutions.

The CSN Assessment Plan also requires Biological Sciences to submit an annual assessment report to the Office of Institutional Assessment. This report summarizes the achievement of program SLO's in the last assessment cycle, and explains how this data was used to guide decisions on assessment methods, curriculum, and instruction. Biological Sciences submitted its annual report in October, 2016. The following paragraphs are a narrative of this report.

Prior to fall 2016, achievement of SLO's for the BIOL-AS were assessed via a final, group project in BIOL 197. This project centered on the creation and presentation of poster suitable for a scientific meeting. The Department considered a score of 70 - 100% on the final, group project as achievement of program SLO's. On the basis of this rubric, 100% of students in the Biological Sciences Program achieved program SLO's. Ninety-three percent of these students exceeded expectations. The remaining 7% met expectations.

In addition to the final project, achievement of program SLO's was assessed, directly and indirectly, with a pre- and post-completion questionnaire. On the direct measure portion of this questionnaire, 79.6% of students demonstrated improved performance on the post-completion questionnaire (achievement of program SLO's); 20.4% showed no change, or worse performance (failure to achieve program SLO's). Indirect measures indicated that 56.8% of students completing BIOL 197 felt that they had greater understanding of important concept in the biological sciences.

Program SLO's, and the methods used to assess them, meet all criteria for the required three-year assessment plan. Overall, the assessment results from the last cycle are excellent. They indicate no performance gaps or need for improvement. However, some faculty in Biological Sciences were concerned by the discrepancy between achievement of program SLO's measured by the final, group project in BIOL 197 and achievement of SLO's measured by the pre- and post-completion questionnaire. Specifically, some faculty felt that the final, group project in BIOL 197 was too "soft" and that scores were artificially inflated. Likewise, faculty felt that the pre- and post-questionnaires did not accurately assess achievement of program SLO's because students had no real incentive to answer the questions to the best of their ability – i.e., the pre- and post-questionnaires did not count toward students final grades.

In light of the noted discrepancy, the department decided to revise the method of assessing program SLO's beginning in fall 2016. The new method of assessment consists of a pre- and post-completion questionnaire that is part of a national standard: "Mastering Biology" (Pearson, MA). Faculty in Biological Sciences collaborate on the selection of questions from the Pearson database for the questionnaire. Questions in the Pearson database have been developed to assess higher cognitive domains (Bloom's Taxonomy). Student responses can be compared with, and contribute to, those in a national database. This feature facilitates discussion of student achievement of SLO's and modifications to curriculum and instruction to correct measured deficiencies. The pre- and post-completion questionnaires are assigned a significant number of points that count toward students' final grades, giving students an

incentive to answer all questions to the best of their ability. The initial data from this new method of assessment will be presented as part of the next annual assessment report to be submitted in fall 2017.

Course Assessment

The CSN Assessment Plan requires Biological Sciences to ensure that all program courses (i.e., those listed under the Special Program Requirements of the BIOL-AS) have clear and measurable course SLO's. Additionally, program course SLO's must be regularly reviewed to ensure that they align with, and support, program SLO's. This process is referred to as curriculum mapping. Ultimately, all program courses will be reviewed at least once every three years.

To date, the department has reviewed and updated the course SLO's for BIOL 196 and BIOL 197, which are the only BIOL courses listed under the Core Special Program Requirements of the BIOL-AS. In addition, the department has reviewed and updated the course SLO's for BIOL 251H, which is highly recommended for the Electives Special Program Requirements of the BIOL-AS.

Curriculum mapping for other courses listed under the Core Special Program Requirements of the BIOL-AS will be conducted in the 2017 - 2018 (CHEM 121 and CHEM 122) and 2018 - 2019 (PHYS 151 and PHYS 152) academic years. Curriculum mapping will also be conducted for BIOL courses that BIOL-AS graduates regularly use to meet the Electives Special Program Requirements.

In addition to its program courses, Biological Sciences offers one course whose principal function is to meet the Gen Ed Natural Sciences Requirements for AS, AA, AB, and AAS degrees. BIOL 101 was developed to provide a lab science that satisfies Gen Ed Natural Sciences requirement. Consequently, course SLO's for BIOL 101 have been reviewed to ensure that they align with, and support, the Natural Sciences SLO's as defined in the General Education for AA, AS and AB Degrees Policy and the General Education for AAS Degrees Policy. Currently, the SLO's for the Gen Ed Natural Sciences Requirement are:

1. Define and apply basic concepts in one or two scientific disciplines.
2. Competently apply the scientific method.
3. Recognize and evaluate scientific evidence.

In BIOL 101, achievement of course and Natural Sciences SLO's is assessed via a pre- and post-completion questionnaire. Prior to the 2015 - 2016 academic year, percentages of students that had achieved, partially achieved, and not achieved Natural Sciences SLO's were reported to the Office of Assessment. However, the current CSN Assessment Plan has no explicit instructions on Assessment of Gen Ed SLO's. Consequently, data on achievement of Natural Science SLO's is used only to make adjustments to the curriculum and instruction of BIOL 101.

As noted in the Mission of Biological Sciences at CSN, the HS Prerequisites are most important courses in Biological Sciences. These courses are listed under the Gen Ed Natural Sciences Requirements of HS Bachelor of Applied Science (BAS) and HS AAS degrees. However, they are not Gen Ed courses in the traditional sense. Specifically, the course SLO's for the HS prerequisites reflect basic knowledge that HS students must acquire to complete the Special Program Requirements of their respective degrees. The place of the HS prerequisites in the CSN Assessment plan is thus difficult to determine.

Due to its high enrollment and low success, one HS prerequisite, BIOL 189 is the most heavily assessed course in Biological Sciences. Assessment efforts focus on refining course SLO's, understanding impediments to success, and understanding the effectiveness of support services at mitigating impediments to success.

Low achievement of specific course SLO's in BIOL 189 has led to two revisions of course SLO's in the last six years. Revised SLO's place greater emphasis on higher cognitive domains. They also align more effectively with knowledge that students must have prior to registering for BIOL 223 and 251. A third revision of course SLO's aimed at combining and simplifying specific SLO's is likely to occur in the next assessment cycle. Low achievement of specific course SLO's in BIOL 189 has also led to significant revisions in curriculum, particularly the content of lab exercises and the order in which lab exercises are presented.

Data from numerous assessment cycles indicate that poor reading comprehension and poor deductive reasoning skills are major road blocks to completion of BIOL 189 with a grade of C or better. On the basis of this data, an English prerequisite was added to BIOL 189 during the 2015 - 2016 academic year. A math prerequisite will take affect beginning in fall 2018.

The effectiveness of a specific student service, Supplemental Instruction (SI), was assessed for the 2015 - 2016 and 2016 - 2017 academic years. Data indicate that students who regularly receive SI attain significantly higher scores on exams (equivalent to a full letter grade) than students who do not regularly receive SI. Consequently, Biological Sciences strongly supports the continuation and expansion of the SI program.

At present BIOL 223 and BIOL 251 are poorly assessed, despite success rates that are similar to the success rate of BIOL 189. Development and implementation of a comprehensive assessment plan for each course is thus a major goal for the next three year assessment plan.

Data Sets for Academic Appraisal in Biological Sciences

Data sets for academic appraisal, along with summaries of each data set, are provided in the tables that follow. All data sets were provided to the Department by the Office of Institutional Research (IR). Data sets cover:

1. BIOL and NUTR Course counts (Table 1)
2. BIOL and NUTR Section counts (Table 2)
3. BIOL and NUTR Course capacities and fullness (Table 3)
4. Enrollment in BIOL and NUTR courses (Table 4)
5. Enrollment in the BIOL-AS (Table 5)
6. Graduation from the BIOL-AS (Table 6)

Overall, the number of courses offered by Biological Sciences (Table 1) remained constant from fall 2012 to fall 2015. The department regularly schedules 15 distinct courses in each academic year: BIOL 095, BIOL 101, BIOL 113, BIOL 116, BIOL/NUTR 121, BIOL 122, BIOL 189, BIOL 196, BIOL 197, BIOL 214, BIOL 220, BIOL 223, BIOL 224, BIOL 251, and BIOL 251H. However, two of these courses, BIOL 116 and BIOL 122 are typically offered only in the spring semester. Hence, they are missed by the data sets that IR provides, which include only fall semesters. Otherwise, the variation noted in Table 1 reflects the presence/absence of BIOL 103. This is a specialized course that allows a student who transfers to CSN with only the lecture component of a course such as BIOL 101 to complete the lab. Thus, BIOL 103 is added to the schedule only when needed.

The number of sections for BIOL courses (Table 2) increased notably from fall 2012 to fall 2015. This increase is based on additional sections of three HS prerequisites, BIOL 189, BIOL 223, and BIOL 251, and one Gen Ed course BIOL/NUTR 121. The first three courses are now at, or near, capacity with respect to available lab space. Similarly, the average workload of full-time faculty who teach these courses is 17.2 instructional units (IU's) per semester. Thus, additional increases in the number of sections for HS prerequisites are unlikely barring the acquisition of new lab facilities, new priority classrooms, and additional full-time faculty members. The increase in BIOL/NUTR 121 sections consists almost entirely of online sections. The online version of BIOL/NUTR 121 is a popular option for students seeking a non-lab science course to fulfill Gen Ed Natural Sciences Requirements for AS, AA, AB, and AAS degrees.

Fullness of BIOL course sections has remained constant from fall 2012 to fall 2015 (Table 3). The variation observed is typically less than a single percentage point and is unlikely to be statistically significant. At the time of census, sections of BIOL courses, whether lecture or lab, are typically 95% full. While we have no data from departments outside the School of Science and Mathematics for comparison, we feel that this percentage is above average for CSN. Likewise, we feel that the average section cap of 34.19 students in fall 2015 is relatively high for CSN, particularly when one considers the fact that caps on lecture sections are limited by the number of students that can be accommodated in labs.

While overall enrollment at CSN has declined since 2012, enrollment in BIOL courses has increased in terms of both headcount and FTE. With more than 7,000 students enrolled across all BIOL sections (i.e., duplicated headcount), Biological Sciences is now the second or third largest department at CSN. As with BIOL course sections, the increase in enrollment reflects increased enrollment in three HS prerequisites, BIOL 189, BIOL 223, and BIOL 251, and one Gen Ed course, BIOL/NUTR 121. Overall the increase in enrollment is driven by continued high demand for HS prerequisites. Indeed, the demand for seats in these courses appears to be significantly higher than department's ability to supply them given current limitations of lab space and full-time faculty.

Enrollment in the BIOL-AS remained relatively constant from fall 2013 to fall 2015, with 730 - 760 students enrolled during the fall semester. From fall 2013 to fall 2015, there were 1595 distinct (i.e., unduplicated) students pursuing a BIOL-AS. Graduation rates also remained relatively constant: 25 - 35 students graduated in each academic year. From the 2013-2014 academic year to the 2015-2016 academic year, there were 95 distinct students that graduated with a BIOL-AS. Hence, the total graduation rate over the three year review period was approximately 6%. This rate is low, particularly when compared to the graduation rate for the Associate of Science Degree – No Emphasis (AS), which is 15.6%. However, the graduation rate for the BIOL-AS is directly comparable to graduation rates for the various Physical Sciences degrees.

According to IR there was a single student pursuing a BIOL-AA degree in fall 2012. This observation is the result of an error in coding, as there has never been an Associate of Arts Degree for Biological Sciences.

Table 1. Course Counts

Historical Course Counts - Fall 2012 - 2015								
School Name	Department	Subject	Fall 2012	Fall 2013	Fall 2014	Fall 2015	1 yr (14 -15) Change in Counts	3 yr (12 - 15) change in Counts
Science and Math	Biological Sciences	BIOL	13	14	13	14	7.7%	7.7%
Science and Math	Biological Sciences	NUTR				1	n/a	n/a

Course Counts - Fall 2015							
School Name	Department	Subject	Courses	Courses with No Online Sections	Courses with Online Sections	Non-Developmental Sections	Developmental Courses
Science and Math	Biological Sciences	BIOL	14	9	5	14	0
Science and Math	Biological Sciences	NUTR	1	0	1	1	0

Historical course counts exhibited a 7.7% change for both the 1 year and 3 year time frames. Data was only available for 2015 for the NUTR courses. During the Fall of 2015 BIOL offered 14 courses, 9 of those had no online sections and 5 had online sections. NUTR offered one course which has online sections available. Neither NUTR or BIOL had developmental courses.

Table 2. Section Counts

Historical Section Counts - Fall 2012 - 2015								
School Name	Department	Subject	Fall 2012	Fall 2013	Fall 2014	Fall 2015	1 yr (14 -15) Change in Counts	3 yr (12 - 15) change in Counts
Science and Math	Biological Sciences	BIOL	273	270	282	298	5.7%	9.2%
Science and Math	Biological Sciences	NUTR				12	n/a	n/a

Section Counts - Fall 2015							
School Name	Department	Subject	Sections	Non-online Sections	Online Sections	Non-Developmental Sections	Developmental Sections
Science and Math	Biological Sciences	BIOL	298	274	24	298	0
Science and Math	Biological Sciences	NUTR	12	6	6	12	0

Historical section counts in the BIOL courses increased by 5.7% from 2013 – 2014 and 9.2% in the 3 year span from fall of 2013 to fall of 2015. Data for the NUTR courses was only available for 2015. During the Fall of 2015, there were 298 BIOL sections offered, 274 of them were in person (non-online) courses and 24 were online sections. NUTR had 12 sections, 6 of which were online. Both BIOL and NUTR offered no developmental sections.

Table 3. Capacities and Fullness

Historical Fullness - Fall 2012 - 2015								
School Name	Department	Subject	Fall 2012	Fall 2013	Fall 2014	Fall 2015	1 yr (14 -15) Change in Fullness (In percentage points)	3 yr(12 - 15) change in Fullness (In percentage points)
Science and Math	Biological Sciences	BIOL	95.30%	96%	94.30%	94.60%	0.30	-0.70
Science and Math	Biological Sciences	NUTR				86.70%	86.70	86.70

Average Enrollments, Capacities and Fullness - Fall 2015								
School Name	Department	Subject	Component	Total Sections	Total Enrolled	Avg Enrolled	Avg Section Cap	Avg Fullness
Science and Math	Biological Sciences	BIOL	Lecture	125	4,007	32.06	34.19	93.00%
Science and Math	Biological Sciences	BIOL	Non-Lecture	173	3,379	19.53	20.37	95.80%
Science and Math	Biological Sciences	NUTR	Lecture	12	127	10.58	12.50	86.70%

In the BIOL courses, historical fullness saw a slight increase in percentage points (.30) from fall 2013 to fall of 2014. There was a slight decrease in fullness over the three year span from fall of 2012 to fall of 2015 (-.70). Data is only available in the NUTR courses for fall of 2015, during that time the courses were 86.7% full.

During fall of 2015, there was 125 sections of BIOL lecture courses offered. In these sections, 4,007 students were enrolled and the courses had an average section cap of 34.19 and 93% fullness.

The BIOL non-lecture courses had 173 sections with 3,379 students enrolled. The average section cap for these courses was 20.37 and they were 95.80% full. The NUTR lecture courses had 12 sections with 127 students enrolled. The average section cap is 12.50 and they were 86.7% full.

Table 4. Enrollment and FTE

Historical Enrollment and FTE													
School Name	Subject	Fa12 Enrollment	Fa12 FTE	Fa13 Enrollment	Fa13 FTE	Fa14 Enrollment	Fa14 FTE	Fa15 Enrollment	Fa15 FTE	1 yr (14 - 15) Enr Change	1 yr (14 - 15) FTE Change	3 yr (12 - 15) Enr Change	3 yr (12 - 15) FTE Change
Science and Math	BIOL	7,182	993.5	6,918	957.6	7,133	993.1	7,386	1,025.50	3.50%	3.30%	2.80%	3.20%
Science and Math	NUTR							127	25.4	n/a	n/a	n/a	n/a

Enrollment and FTE								
School Name	Department	Subject	Total Enrollment (Duplicated)	FTE	Traditional FTE	Online FTE	Non-Dev FTE	Dev FTE
Science and Math	Biological Sciences	BIOL	7386	1025.53	936	89.53	1025.53	-
Science and Math	Biological Sciences	NUTR	127	25.4	13.8	11.6	25.40	-

Enrollment in the BIOL courses decreased slightly from fall of 2012 to fall of 2013 and then increased in both fall of 2014 and fall of 2015. There was an average change of 3.2% in the FTE for the BIOL courses during the 3 year span from fall of 2012 to fall of 2015. Historical data was only available in the NUTR courses for Fall of 2015.

During fall of 2015, total enrollment (duplicated) was 7,386 in the BIOL courses and 127 in the NUTR courses. FTE was 1025.53 in the BIOL courses, 936 from traditional FTE and 89.53 from online FTE. In the NUTR courses FTE was 25.4 of that total, 13.8 was traditional FTE and 11.6 was in online FTE.

Table 5. Enrollment in, and Graduation from, the BIOL-AS

Enrollment Totals							
School Name	Department Name	Program Code	Program Name	Fall 13	Fall 14	Fall 15	Grand Total*
Science and Mathematics	AS Degree (No Emphasis)	AS	Associate of Science - AS	1987	2354	2640	5098
	Biological Sciences	BIOL -AA	Biological Sciences - AA	0	1	0	1
	Biological Sciences	BIOL - AS	Biological Sciences - AS	743	762	732	1595
	Biological Sciences - Total			743	763	732	1596

Graduation Totals							
School Name	Department Name	Program Code	Program Name	13-14	14-15	15-16	Grand Total
Science and Mathematics	AS Degree (No Emphasis)	AS	Associate of Science - AS	221	278	294	793
	Biological Sciences	BIOL - AS	Biological Sciences - AS	34	25	36	95
	Biological Sciences - Total			34	25	36	95

*This number is not a sum, it is the distinct (unduplicated) count of all students enrolled in the program between Fall 2013 and Fall 2105

Chair's Summary and Action Plan

Given the varied, and often intractable, constraints that Biological Sciences is subject to, the department is doing an exceptional job of carrying out its mission.

Section numbers for BIOL 189, BIOL 223, and BIOL 251 have increased each academic year since 2012-2013, allowing more students to enter the pipeline for limited entry HS programs. Likewise sections of BIOL 196 and BIOL 197 have increased every academic year since 2012-2013, allowing more students to complete the Core Special Program Requirements for the BIOL-AS. In response to student demand, online sections of BIOL 101 and BIOL 121 have significantly increased, allowing more students to satisfy the Natural Sciences component of the Gen Ed Requirements for AS, AA, AB, and AAS degrees with BIOL courses.

Overall, Biological Science is ahead of the curve in assessment. We have complied with all requirements of the CSN Assessment Plan, and gone above and beyond requirements in several areas. For example, impediments to completion of BIOL 189 have been assessed with multiple methods every semester since fall 2012. Data provided by these methods have been used to revise: 1) course SLO's, 2) course curriculum, 3) methods of instruction, and 4) prerequisites. In addition, BIOL 189 has been used to assess the effectiveness of a student service, SI, since the 2015-2016 academic year. Data indicate that SI is a particularly effective method of increasing student completion. Hence, it should be supported by the CSN Administration.

The strength of Biological Sciences is its faculty (Appendix B) and classified employees. In terms of skill, dedication, and professionalism, the faculty and staff of Biological Sciences are, unequivocally, the finest group of civilian employees that the current Chair has ever worked with. The faculty of Biological Sciences maintain an exceptional degree of communication and cooperation. They also have an unusually high capacity for perceiving long-term patterns and "thinking outside the box." In combination, these qualities combine to produce a department that has a "can do" attitude and an "all for one, and one for all" mentality.

However, despite the dedication and skills of Biological Sciences faculty and staff, additional performance gains are limited by a number of factors. These factors include iron laws of logistics that cannot be violated. For example, BIOL 189, BIOL 223, and BIOL 251 are now at, or very near, capacity in terms of available lab space. Hence, barring capital improvements such as construction of the Health/Science building at Henderson, there can be no further growth in the HS prerequisites. In addition to space limitations, growth of the HS prerequisites is limited by availability of high quality instructors. The average workload in Biological Sciences is 17.2 IU's per semester. Many faculty have workloads that are at, or near, the 19 IU limit. Such conditions have noticeable effects on performance and morale. The best and brightest faculty in Biological Sciences are slowly burning themselves out. Limitations of space and personnel were both noted as significant problems in Biological Science's last program review in 2011. Some relief has come in the form of two additional faculty positions. However, the extra faculty are not sufficient to meet growing demand for the HS prerequisites. This demand seems to have no practical ceiling.

Anecdotal evidence suggests that completion rates of courses such as BIOL 189 have increased. However, the department is faced with conflicting demands and political decisions by the CSN Administration that place a hard ceiling on completion rates. The current NSHE funding formula gives CSN a financial incentive to maximize enrollment while simultaneously attempting to maximize completion rates of courses and degrees. However, a vast body of research in higher education indicates that these goals are diametrically opposed: increasing completion rates ultimately requires limiting access to students who have a reasonable probability of succeeding. This assertion is consistent with assessment data from BIOL 189, which indicates that completion depends on reading comprehension, deductive reasoning skills, and the ability to think abstractly. First year students at CSN are typically deficient in all three areas. Hence, the most effective way to increase completion rates in BIOL 189 is to add ENG and MATH prerequisites. Yet, attempts to add these prerequisites are vigorously resisted by HS, particularly the Nursing program.

The low graduation rates for the AS and BIOL-AS are concerns. However, increasing the graduation rates is a complex problem that Biological Sciences cannot solve by itself. In the last program review in 2011, it was noted that increasing graduation rates for the AS and BIOL-AS required dedicated counselors to help guide students through the programs, and increased student advisement by full-time faculty (under the guidance of professional counselors) in Biological Sciences. Both suggestions were implemented as part of the Mandatory Matriculation Program (MMP). Anecdotal evidence suggests that parts of the MMP, particularly faculty advising, were making a positive difference. However, after only two years, the MMP quietly disappeared without explanation, or even a formal announcement. Otherwise, graduation rates for the AS and BIOL-AS are likely to be artificially low. Large numbers of students enroll in both programs, even though they do not intend to complete them. The majority of these students seem to use the AS and BIOL-AS as “placeholders.” By declaring an AS or BIOL-AS major, these students can take courses at CSN until they can transfer to a limited entry HS program or an institution outside CSN. To calculate accurate graduation rates, these students should not be counted as “enrolled.”

Biological Sciences can make meaningful improvements in the area of assessment. Such improvements include curriculum mapping for the courses that can be used to satisfy the Electives Special Program Requirements of the AS-BIOL. In addition, comprehensive assessment plans, similar to the one in place for BIOL 189 need to be put in place for BIOL 223 and BIOL 251, which also have low success rates. Finally significant modifications need to be made to AS, as the Special Programs Requirements of this degree make it un-assessable. Revision of the AS will necessitate cooperation between Biological Sciences and Physical Sciences, as the degree is a joint venture between both departments.

Appendix A

Supplemental Narrative Questions
Annual Academic Appraisal Policy

COLLEGE OF SOUTHERN NEVADA MISSION AND CORE THEMES

Mission: The College of Southern Nevada creates opportunities and enriches lives with inclusive learning and working environments that support diversity and student success. The College fosters economic development, civic engagement, and cultural and scientific literacy, while helping students achieve their educational, professional, and personal goals.

Core Themes (for NWCCU Accreditation): Student Success; Community, Connection, Inclusion, and a sense of belonging; Quality; Institutional Stewardship

SUPPLEMENTAL NARRATIVE QUESTIONS – DISCIPLINE/PREFIX

Date Submitted: 5/10/2017 **Submitted by:** Matthew Mahrt, Chair, Dept. of Biological Sciences

Data to be provided by Chair/Program Dir/Lead Faculty

Please respond on this form or attach additional pages. Answer only questions that are relevant to this discipline.

CORE MISSION:

1 How does this discipline relate to the Mission and Core Themes of the College? (See appendix)

Biological Sciences directly supports CSN's mission to foster cultural and scientific literacy, while helping students achieve their educational, professional, and personal goals by: 1) devising the curriculum of, and providing quality instruction for, courses (Health Sciences prerequisites) that directly support programs in the Ralph and Betty Englestad School of Health Sciences; 2) devising the curriculum of, and provide quality instruction for, the Associate of Science Degree - Biological Sciences emphasis (BIOL-AS), including courses that fulfill the Special Program Requirements; and 3) devising the curriculum of, and providing quality instruction for, courses that satisfy the Natural Sciences component of the General Education Requirements for Associate of Science (AS), Associate of Arts (AA), Associate of Business (AB), and Associate of Applied Science degrees (AAS). The department currently enrolls more than 7,000 students per semester, making it the second or third largest departments at CSN. Biological Sciences is also a primary access point for all students seeking to enroll in limited entry Health Sciences Programs.

2 To the best of your knowledge, how and to what extent is this discipline essential because of state laws, regulations, outside agency regulations, Board of Regents or Legislative priorities?

The Nevada Legislature and the Nevada System of Higher Education have made health professions, especially nursing, a priority. Biological Sciences provides a critical portion of the Health Sciences Prerequisites for the limited entry Health Sciences Programs.

3 How and to what extent does this discipline support general education requirements for CSN programs?

Biological Sciences provides one lab science course (BIOL 101) that is specifically designed to satisfy the Natural Sciences component of the General Education Requirements for AS, AA, AB, and AAS degrees. In addition, the department provides a variety of non-lab sciences courses (e.g., BIOL 113, BIOL/NUTR 121) that can be used to satisfy the Natural Sciences component of the General Education Requirements for AS, AA, AB, and AAS degrees.

4 How and to what extent does this discipline support programs at CSN?

As noted in the answer to question one, Biological Sciences provides critical support for all limited entry Health Sciences Programs.

5 How and to what extent does this discipline depend upon prerequisite courses from other disciplines at CSN?

Both of Biological Sciences' entry level majors courses (BIOL 189 and BIOL 196) depend on specific pre-requisite courses in English (e.g., ENG 101). Effective fall 2018, both entry level majors courses will depend on specific prerequisite or co-requisite courses in Math (e.g., MATH 104B, MATH 116, MATH 124).

6 How and to what extent does this discipline support programs at other NSHE institutions?

Via the BIOL-AS, Biological Sciences supports further study of biology at UNLV, NSC or UNR. In addition, the Health Sciences prerequisites offered by the department support limited entry Health Sciences Programs at all other NSHE institutions.

7 How and to what extent does this discipline support student extracurricular activities at CSN?

Biological Sciences supports the CSN Biology Club as well as Sci-Night, a weekly gathering of faculty and students in Biological Sciences that discusses current research in the Biological Sciences and related disciplines.

QUALITY:

8 How and to what extent does this discipline help to satisfy a program's specialized accreditation?

The specialized accreditation for Limited Entry Health Sciences Programs includes examination of the Health Science Prerequisites offered by Biological Sciences.

9 How and to what extent does this discipline contribute to CSN's regional or national reputation?

Faculty in Biological Sciences are active in various fields of research including research in plant and animal ecology and medical microbiology. Several of these faculty have nationally recognized publications and reputations. In addition, the Department has contributed to several grants which have been well received regionally and nationally

DEMAND:

10 Describe the level and nature of external demand for this discipline (for example, occupational data, labor statistics, employer surveys, student surveys, etc.)?

At present, Biological Sciences has no method by which to adequately assess demand for the Health Sciences prerequisites or the BIOL-AS. The best we can do is examine course waitlists, student requests for course substitutions, and student declarations of interest. These anecdotal sources of information suggest that demand for Health Sciences prerequisites and demand for BIOL courses that support the Core Special Program Requirements of the BIOL-AS (BIOL 196 and BIOL 197) are currently much higher than the department can meet given current lab facilities and full-time faculty.

11 Describe the level and nature of external financial or practical support for this discipline (for example, grants, donations, employer or clinical partnerships, etc.)?

At present, Biological Sciences is involved in the Nevada INBRE grant supported by the National Center for Research Resources (5P20RR016464-11) and the National Institute of General Medical Sciences (8P20GM103440-11). Sonja Burd, Ph.D. currently coordinates this grant.

12 What other options exist for students in the region to study in this discipline?

Biology is a fundamental discipline at all higher education institutions that offer basic degrees. Locally, such institutions include UNLV and NSC. Statewide, Biological Sciences is also represented at UNR, TMCC, WNCC and GBC.

SUPPLEMENTAL NARRATIVE QUESTIONS - PROGRAM

Date Submitted: 5/10/2017 Submitted by: Matthew Mahrt, Chair, Dept. of Biological Sciences

Data to be provided by Chair/Program Dir/Lead Faculty

Please respond on this form or attach additional pages. Answer only questions that are relevant to this program.

CORE MISSION:

1 How does this program relate to the Mission and Core Themes of the College? (See appendix)

The BIOL-AS directly supports CSN's mission to foster cultural and scientific literacy, while helping students achieve their educational, professional, and personal goals. The program currently has approximately 30 graduates per year, most of whom transfer to UNLV and other four-year institutions to complete baccalaureate degrees. Most graduates intend to go on to medical school or veterinary school.

2 To the best of your knowledge, how and to what extent is this program essential because of state laws, regulations, outside agency regulations, Board of Regents or Legislative priorities?

N/A. There are no laws or regulations that require CSN to offer the BIOL-AS.

3 How and to what extent does this program relate to programs at other NSHE institutions (for example, overlapping programs, articulation or transfer relationships, etc.)?

As noted, the BIOL-AS directly transfers as the first two years of baccalaureate programs in biology or closely related fields at any of the four year institutions in Nevada.

4 How and to what extent does this program relate to programs at non-NSHE colleges in Southern Nevada?

This information is currently unknown. However, inquiries from students, request for prerequisite waivers, etc. suggest that the Health Sciences Prerequisites transfer to local, for-profit private institutions.

5 How and to what extent does this program depend upon prerequisite courses from other disciplines at CSN?

As noted BIOL 189 and BIOL 196 have, or will have, prerequisites in English and Math. While not prerequisites per se, CHEM and PHYS courses are required to complete the Core Special Program Requirements for the BIOL-AS.

6 How and to what extent does this program utilize other college resources for academic support (for example, library, technology, counseling, disability resource center, tutoring, writing or math centers, etc.)?

Biological Sciences relies heavily on library resources for course support, as well as student research. The need for tutors and SI instructors is high with limited numbers of qualified individuals, and little funding (e.g., for SI) available.

QUALITY:

7 Does this program have an advisory board, or does the department have an advisory board relevant to this program? Describe briefly.

No, as a base discipline, Biological Sciences has no specialized advisory board.

8 If this program has a specialized accreditation, is this accreditation necessary for alumni licensure or employability?

No, as a base discipline, Biological Sciences has no specialized accreditation requirements.

9 How and to what extent does this program contribute to CSN's regional or national reputation?

Biological Sciences appears to have a solid reputation for quality instruction within the region. For example, a significant number of students prefer to take their Health Sciences prerequisites at CSN, even though are pursuing degrees at UNLV. This supposition is based on anecdotal accounts from students enrolled in, or seeking to enroll in, BIOL 189, BIOL 223, BIOL 224, and BIOL 251.

DEMAND:

10 Describe the level and nature of external demand for this program (for example, occupational data, labor statistics, employer surveys, student surveys, etc.)?

There is little demand among employers for students with a BIOL-AS. As noted the degree is designed to be a transfer degree, not a terminal one.

11 Describe the level and nature of external financial or practical support for this program (for example, grants, donations, employer or clinical partnerships, etc.)?

As noted, Biological Sciences is involved in the Nevada INBRE grant supported by the National Center for Research Resources (5P20RR016464-11) and the National Institute of General Medical Sciences (8P20GM103440-11). Sonja Burd, Ph.D. currently coordinates this grant. The major benefit of the Nevada INBRE grant is the INBRE Biomedical Workshop. This workshop, which is held during the summer months, provides 50 selected students with advanced laboratory skills that are useful for careers in biomedicine. Students are also able to tour various facilities for medicine and biological research, and listen to speakers from a broad range of biomedical fields.

12 What other options exist for students in the region to earn this degree or certificate?

In Southern Nevada, Biological Sciences at CSN provides the only Associates degree in Biological Sciences. There are no other options.

Appendix B

Profiles of Full-Time Faculty Department of Biological Sciences

Profiles are based on self-reporting by individual faculty members. Specific information that was requested was: 1) degrees earned, 2) major Service to the Department, School, and College, and 3) membership/involvement with professional organizations.

Dwane Aulner

- **Degrees**
 - 1986 BS Biology Education
 - 1996 MS Biology
- **Conferences Attended**
 - Learning System Video Conference McGraw Hill, Summer 2016
 - Arizona Nevada Academy of Science Conf., Spring 2016
 - CSN Southwestern U.S. A&P Textbook Conference ,July 2001
- **CSN Service and Major Committees**
 - CSN Limited Entry Reinstatement Committee (current)
 - CSN Nursing Advisory Board (current)
 - CSN Henderson Science Bldg. Committee. (current)
 - Bio. 223/224 Lab Coordinator (current)
 - NSHE Common Course Numbering Committee
 - CSN Safety and Security Committees
 - CSN Science and Tech Expo. Committee
 - CSN WCH Science Bldg. Committee
 - CSN Henderson Science "Task Force"
 - Partial rewrite of CSN Adjunct Faculty Handbook
 - Lead Faculty for A&P and Micro. (2 terms)
 - CSN Hiring Committees (multiple as member and Chair)
 - CSN Tenure Committees (multiple as member and Chair)
 - CSN Part-time Faculty Recruitment Fair (multiple)
 - CSN Science and Tech. Expo. (all)
 - CSN CAPE Instructor (Managing Numerous Faculty)
 - CCSD "Career Days" as Biology Nerd (multiple)
 - CCSD "Science Night" (multiple)
- **Additional Training and Service**
 - Classroom Management
 - LMS Training
 - Self Defense
 - Students with Disabilities
 - Active Shooter Awareness
 - Administrative Policy
 - Part time Faculty Workshops

Mary Bennett

- **Degrees**
 - 1983 AA General Studies
 - 1986 BA Biotechnology
 - 1997 MA Biology/Plant Physiology
- **CSN Service**
 - Previous Microbiology Lab Coordinator
 - Numerous Hiring Committees
 - 2 microbiology hiring committees
 - Hiring committee for biology 189
 - Hiring committee for anatomy & physiology
 - Member of achieving the dream for two subcommittees
 - Participated in Science Expo for numerous years
 - Participate yearly in CSN connections events
 - Participated in the initial planning of the first NISOD program
 - Member of Faculty Program review committee
- **Additional Training**
 - Quality Matters Training
 - LaunchPad training for Nutrition
 - Search Committee training

Sonja Burd

- **Degrees**
 - PhD Biology
- **Conferences Attended**
 - NV INBRE Statewide meeting in Reno (Aug 2016)
 - Genomic Approaches in Biosciences workshop in Chula Vista, CA (Jan 2015).
- **CSN Service and Major Committees**
 - Faculty Senator for Biological Sciences
 - Faculty Senate Curriculum Committee member
 - Math and Science School Curriculum Advising Committee chair
 - Gen Ed. Subcommittee member
- **Additional Training and Service**
 - Quality Matters Training
 - Director of INBRE Grant

David Charlet

▪ Degrees

- 1998 BS Biology
- 1991 MS Biology
- 1995 PhD Ecology, Evolution and Conservation Biology

▪ Presentations

- Spring Valley Workshop. Hidden Valley Ranch, White Pine County, Nevada. August 2016.
 - Presented invited paper, "Field work in the greater Great Basin ecosystem: Learning and funding opportunities."
- Mount Charleston Symposium. University of Nevada, Las Vegas. 2016
 - Presented invited paper, "Floristic Inventory of the Spring Mountains, Clark and Nye Counties, Nevada."
- 24th Annual Meeting International Union for Forest Research Organizations, Henderson, Nevada. 2014
 - Presented invited paper, "Biogeography of the Great Basin and Mojave Desert, western U.S.A."
- 22nd Annual Meeting Nevada Geographic Information Society, Las Vegas, Nevada. 2012
 - Presented invited paper, "Baseline vegetation and floristic data for Clark County, Nevada."
- Annual Nevada System Higher Education Climate Change Conference, University of Nevada, Las Vegas. 2012.
 - Presented invited paper, "Baseline vegetation and floristic data for the Snake Range, White Pine County, Nevada."
- Annual Nevada System Higher Education Climate Change Conference, Desert Research Institute, Reno, Nevada. 2011
 - Presented invited paper, "Climate and Floristic Variation in the Snake and Sheep Range, Nevada."
- California Interagency Fire Prevention and Mitigation Conference, Rancho Mirage, California. 2010
 - Presented Keynote address, "Shah-kan-daw: Anthropogenic simplification of semi-arid vegetation structure."
- Annual Nevada System Higher Education Climate Change
 - Presented invited paper, "Biotic Response to Climate Change in the Great Basin and Mojave Desert: Vegetation."
- American Geophysical Union Fall Meeting, San Francisco, California. 2010.
 - Presented invited paper, "Climate and Floristic Variation in Great Basin Mountain Ranges."
- Shrublands under fire: disturbance and recovery in a changing world; 2006 June 6-8; Cedar City, Utah. USDA Forest Service Rocky Mountain Research Station.
 - Presented invited paper for Plenary session, "Shah-kan-daw: Anthropogenic simplification of semi-arid vegetation structure."

- Faculty of Sciences, Tehran University, Tehran, Iran and to the Faculty of Sciences, Guilan University, Rasht, Iran. 2004
 - Presented invited paper, "Vegetation mapping in deserts and mountains."
- Biyang International Symposium on Technology and Marketing of Lentinula edodes, Zhumadian, China. March 2002
 - Presented invited paper, "Island biogeography theory and vegetation mapping: Conservation lessons from the American West."
- Jepson Herbarium 50th Anniversary Scientific Symposium, University of California, Berkeley. 2000.
 - Presented invited paper, "Coupling species-level inventories with vegetation mapping."
- Great Basin Biological Research Conference, University of Nevada, Reno. 1999.
 - Presented invited paper, "Great Basin biogeography in the 21st century."
- **Conferences Attended**
 - State Higher Education Executive Officers Professional Development Conference, Chicago, Illinois. August 15-17, 2006
 - State Higher Education Executive Officers K-16 Professional Development Collaborative Meeting, Seattle, Washington. August 18-19, 2005
 - State Higher Education Executive Officers Professional Development Conference, Washington, D.C. June 10-13, 2003
 - State Higher Education Executive Officers K-16 Professional Development Collaborative Meeting, Chicago, Illinois March 19-20, 2002
 - State Higher Education Executive Officers K-16 Professional Development Collaborative Meeting, Washington, D.C. June 19-20, 2001

Chris Collumb

- **Degrees**
 - BA Biology
 - MA Marine Science
 - PhD Marine Science
- **CSN Service and Major Committees**
 - Mentoring Students for a NASA grant
 - Bio 101 Lab Coordinator
 - Wrote Bio 197 Lab Manual
 - Edited Bio 101 Lab Manual
 - Faculty senator
 - Special Hearing Committee
 - Environmental Strategies Committee
 - e-learning Senate Committee
- **Publications**
 - Larrea tridentata Uptake of Trace Metals in Mine Tailings within an Arid Region of Nevada, USA International Journal of Plant & Soil Science 9(5): 1-11, 2016.

Marcela Cortes-Ramirez

- **Degrees**
 - 1996 B. Eng. Instituto Tecnológico de Acapulco, Mexico
 - 2000 MS. Universidad Autónoma de Querétaro, Mexico.
 - 2007 Ph.D. Nutritional Sciences. U of I
 - 2016 Masters of Education UNLV
- **Conferences Attended**
 - American Society for Nutrition (EB) Presenter, San Diego. 2008
 - American Association for Cancer Research (AACR) Poster Presenter, Denver 2009
- **CSN Service and Major Committees**
 - Hispanic Serving Institution (HSI). 2012-Present
 - Comprehensive Internationalization Committee. 2014-2016
 - Search Committees for different faculty positions. 2012, 2013, 2015
 - Nutrition Book Search committee. 2013
 - BIOL 189 Laboratory Co-coordinator 2013-Present
 - BIOL 189 Part time instructor evaluator 2013-Present
 - Latino Student Camp, 2013
 - Nutrition Training during Staff development sessions. 2013
 - International Education Week. 2014
 - CAPE training session on Nutrition. 2015
 - Nutrition Training to Athletic Teams, 2016
 - Outreach: Science and Technology Expo 2012-Present
 - Go to College Nevada. Volunteer 2012
 - Instructor Participation on the NASA-CAN grant 2015
 - Instructor Participation on the Annual Biomedical Exploration Workshop (INBRE 2012)
- **Additional Training and Service**
 - CAPE workshops 2012-Present
 - Certification of Science Content Proficiency. Science of Food Safety. National Science Teachers Association (NSTA). 2014
 - Spanish Language Nutrition Instructor Volunteer at the Volunteers in Medicine of Southern Nevada, Ruffin Family Clinic. Present
 - Grand Award Judge for Cellular and Molecular Biology in the Intel International Science and Engineering Fair. INTEL ISEF 2013, 2014
 - Southern Nevada Regional Future City Competition Judge, 2012

Deborah Harbour

▪ Degrees

- 1986 PhD Microbiology
- 2003 Masters in Public Health

▪ Conferences Attended

- American Society of Microbiology 17th Annual Conference on Undergraduate Education. May 21-25, 2011. San Diego, CA
- ASM Branch Meeting for Nevada Arizona. 4/17/2010
- Cyberlearning at Community Colleges day long workshop (May 2010)
- ASM Faculty Programs Functional Genomics Institute - Hiram, Ohio, June 24 - 28, 2013
- California/Nevada Public Health Training - "Hospital Acquired Infections Workshop" 8/8/12 (Certificate and continuing education for MPH).
- American Society of Microbiology Conference on Undergraduate Education in San Mateo CA, June 14 - 17, 2012
- iPlant workshop on Bioinformatics in Education; University of Nevada Reno, Reno NV, May 21-22, 2014
- Attendee 21st Annual American Society of Microbiology Conference on Undergraduate Education (ASMCUE), Boston, MA, May, 2014
- The Analysis of Microbiomes at the rRNA and Whole-Genome Levels: How to Bring it in the Classroom, ASMCUE 2014 pre-conference workshop, ASMCUE, Danvers, MA, May 14-19, 2014.
- ASM Textbook Focus Group, Microbe 2nd edition, ASMCUE, Danvers, MA, May 14-19, 2014.
- Science Case Network workshop, ASMCUE 2014 pre-conference workshop, ASMCUE, Danvers, MA, May 14-19, 2014.
- Attendee 19th Annual American Society of Microbiology Conference on Undergraduate Education (ASMCUE), San Mateo, CA, May, 2012
- Attendee 18th Annual American Society of Microbiology Conference on Undergraduate Education (ASMCUE), Baltimore, MD, June 2-5, 2012
- Attendee 17th Annual American Society of Microbiology Conference on Undergraduate Education (ASMCUE), San Diego, CA, May 20 - 23, 2010
- Attendee ASMCUE-C3 Cyberlearning at Community Colleges Project Workshop, San Diego, CA, May 20, 2010
- Attendee 16th Annual American Society of Microbiology Conference on Undergraduate Education (ASMCUE), Fort Collins, CO, May 27 – 30, 2009
- Attendee American Society of Microbiology Conference on Undergraduate Education (ASMCUE), Buffalo, New York, May 18 – 20, 2007
- Attendee National Case Study Teaching in Science Workshop, Buffalo, NY, October 2007
- Attendee Nevada Regents' Academy Summer Program, Mt. Charleston, Las Vegas, NV, May 31 – June 2, 2007

- Attendee American Society of Microbiology Conference on Undergraduate Education (ASMCUE), Buffalo, New York, May 18 – 20, 2007
- Attendee Nevada Community College Conference, Reno, NV, April 20, 2007
- Attendee Biology Education Workshop sponsored by W. H. Freeman. Berkley, California, April 12 – 13, 2007
- Attendee Building Strengths on Women in Higher Education Workshop, Nevada Women in Higher Education of the American Council on Education Network on October 20, 2006, Reno, NV
- Basic Laboratory, Chemical and Radiation Safety, Environmental Health and Safety, CSN course, Spring 2016
- American Society of Microbiology Conference on Undergraduate Education (ASMCUE), Attendee, May 19 – 21, 2006, Orlando Florida.
- **Training, Professional Development and Certification**
 - ASM Teleconferences on Molecular Techniques as follows:
 - Molecular Methods, Bacteriology 2/26/13
 - Molecular Virology, 3/5/13
 - DNA Sequencing 3/26/2013
 - New course Certifications from ASM Continuing Education:
 - “The Microbiome and its Impact on Human Health, January 2017
 - Nature Webcase “Antibiotic Resistance”, July, 2016
 - “Emerging Infectious Diseases and Role of Hospital Public Health Labs”, January, 2017
 - “Antimicrobial Susceptibility Testing: Mechanisms of Resistance, Antimicrobial Stewardship, and Infection Prevention”, January, 2017
 - Sexual Harassment training December 2010
 - Faculty Salary Schedule and Change: What it Means for CSN faculty - 8/22/12
 - Flip your College Classroom, Higher Ed/McGraw Hill webinar, November, 2012
 - Web Me! Simple Web Pages - 1/16/13
 - Completion of EPD353, 357, 358, 359, 351, 352, 355 – Online Teaching Certificate course College of Southern Nevada, Summer, Fall 2013
 - CAPE Achieving the Dream - 1/13
 - CAPE Migration Plan from Angel to Canvas 1/16/13
 - Emergency Management Institute Active Shooter training - 3/13 (Certificate)
 - Successful completion of “Applying the Quality Matters Rubric” certification
 - CAPE – A look at the New Canvas Interface, May, 2016
 - CAPE – Using the new tool “Turnitin Plagiarism detection” Nov 2016, Jan 2017
 - MPH and CLS certifications continued voluntarily by participating in online training
 - “Controlling Clostridium difficile workshop”, CA/NV Public Health Training, UNLV, August, 2013.
 - Foodborne Illness, Pacific Public Health Training Consortium, California, July, 2013
 - AACU Inside Higher Ed webinar: Innovation in Teaching- May 2016

- “New approaches in Highlighting Undergraduate Research Opportunity”, Undergraduate Research commons webinar, March 2017.
- Smart Classroom survey participation, January, 2017.
- Completion “Intersections: Preventing Discrimination and Harassment (US), August, 2016
- Molecular Laboratory Diagnostics training; 6 Continuing Education Credits; American Society of Microbiology; Spring 2014.
- Attendee Grant Workshop Writing, College of Southern Nevada, May 8th, 2009
- Attendee Web 2.0 Web based learning training workshop, College of Southern Nevada, November 17, 2008
- Attendee Cape Workshop: Sexual Harassment Training, CSN, December 4th, 2009
- Attendee Technology Trends in Higher Education, College of Southern Nevada, October 8th, 2007
- Attendee Sexual Harassment Training, College of Southern Nevada, September 14, 2007
- Attendee Flash Animation Workshop, ASMCUE Meeting, Buffalo, New York, May 18, 2007
- Attendee Understanding and Reporting Learning Assessment Results, College of Southern Nevada, April 27, 2007
- Attendee Classroom Assessment: Practical Approaches to Evaluating Learning, College of Southern Nevada, February 2, 2007
- Attendee Search Committee Training, College of Southern Nevada, January 26th, 2007
- Attendee Internationalizing the Classroom Mini Simulation, February 9, 2007, CSN, Las Vegas, NV.
- Attendee Digital Media in the Classroom Workshop, Carrie Russell, November, 2006, CSN, Las Vegas, NV
- Professional Committees : Review Board K-12 Committee of American Society for Microbiology. 2011 – 2014.
- **Editorial Educations Review Responsibilites**
 - Expert Reviewer and listed as reviewer in “Fundamentals of Microbiology” open source online Microbiology textbook (free for students), published by OpenStax funded by Bill & Melinda Gates Foundation and Rice University published in summer 2016.
 - Editorial Review Board Member of Journal of Microbiology and Biology Education (Education Committee ASM), January 2013 to present.
 - Editorial Work on Prescott's Microbiology Textbook used in BIOL 251G December 2011 Classification of all textbook questions (entire book 42 chapters) by learning outcome and Bloom's taxonomy.
 - Editorial Board, ASM K-12 Education Committee
 - "Bacteria That Help and Hurt Cows" 2010.
 - "Cyanobacteria pigment Chromatography" 2011

- Kirby Bauer Disk Diffusion Protocols Reviewer ASM Microbe Library Curriculum Collection. <http://www.asmscience.org/content/education/protocol>
- Reviewer Editorial Board on JMBE in December, 2012. Article "Inquiry Based Learning: Inflammation as a model to teach molecular techniques for assessing gene expression"
- Review Microbiology Textbook: Chapters on DNA and RNA viruses, Foundations in Microbiology 7th edition, by Talaro, KP 2008 Review, McGraw-Hill Publishers, Iowa. 2009
- ASM Curriculum Review, "Medical Microbiology Laboratory Case studies", June, 2007 <http://www.asmscience.org/content/education/protocol>
 - "Immune Wars"
 - "Spring Weekend"
 - "The Death of Kermit the Frog"
 - "The Seven Year Itch"
- A Review of Microbiology Experiments & Lab Techniques with CD- ROM. Journal of Microbiology & Biology Education (JMBE). Vol 11(2). 2010.
- Reviewer Summer FOME (Fundamentals of Microbiology Education). Summer, 2008 Issue, ASM.org website.
 - "Brock Biology of Microorganisms, 12th edition", Michael T. Madigan, John M. Matinko, Paul V. Dunlap, David P. Clark. 2009, Pearson Benjamin Cummings, San Francisco, CA. Rev. Deborah V. Harbour, MicrobeLibrary.Org, Focus on Microbiology Education, Summer, 2008.
 - "Microbiologybytes.com" Microbiology website, Alan J. Caan. MicrobeLibrary.Org. Rev. Deborah V. Harbour, Focus on Microbiology Education, Summer, 2008.
- Reviewer for undergraduate submissions to National Science Foundation Experimental Program to Stimulate Competitive Research (NSF EPSCoR). Spring 2015.
- Journal of Microbiology and Biology Education (JMBE) editorial review board; 2012 – Present
 - JMBE review of "Build the Read: A Hands-On-Activity for Introducing Microbiology Students to Next-Generation DNA sequencing. February, 2017
 - JMBE review "siRNA Immunological Fishing Training (SIFT) experience as a novel research education tool for students studying immunology". December, 2016
 - JMBE Review of "Simple Protocol for Molecular Fingerprinting of human oral microbiota samples in lab classes", November, 2016
 - JMBE review of "Fitness of antibiotic-resistant bacteria in the environment: A laboratory activity", August 2016.
 - JMBE Review "Using Anthropomorphism and Fictional Story Development to Enhance Student Learning", July, 2016
 - JMBE Review "The Impact of an Interactive Statistics Module on Novices"

- Reviewer of ASM Student Learning Assessments in Microbiology Database (SLAMD impact higher learning questions), new database for critical thinking questions from ASM, 2015 - 2016.
- **Publications and Abstracts**
 - Harbour, DV and JV Spenser. A Review of Microbiology Experiments & Lab Techniques with CD-ROM. Journal of Microbiology & Biology Education (JMBE). Vol 11(2). 2010.
 - Kaveh Zarrabi, Heidi Porter, Patrick Leary, and Deborah V. Harbour. JMBE Vol 11 (1). 2010. Student Research at a 2-Year College Using a Biology and Chemistry Integrated Approach. JMBE Vol 11 (1). 2010.
 - Gelatin Hydrolysis Testing (ad hoc review) 2013
<http://www.microbelibrary.org/library/laboratory-test/3776-gelatin-hydrolysis-test-protocol>
 - Harbour, DV. Microorganisms Enhance Understanding of Evolution, Review of Microbes and Evolution; The World that Darwin Never Saw. JMBE; Vol 12 (2); 2012.
 - Best, B., Harbour, DV. Virtual Laboratory Meets Case Based Instruction, Review of Case-It!. JMBE, Vol 12 (2); 2012.
 - A. Moran, D. V. Harbour, L. D. Teeter, J. M. Musser, E. A. Graviss. Is alcohol use associated with cavitary disease in tuberculosis? Alcoholism: Clin & Exper Res. 2007, Vol 1 (1), 33-38.
 - Harbour, Deborah V., Review: "Microbiologybytes.com" Microbiology website, Alan J. Caan. MicrobeLibrary.Org. Focus on Microbiology Education, Summer, 2008.
 - . Liliana Rodriguez, Robin Patterson, Danny Opheim, Kenneth Anderson, T. Thomas Stephen Wagner, and Deborah Harbour. "Microbial Discovery Box". ASM K-12
 - Harbour, Deborah V., Review: Foundations in Microbiology, 6th Edition, KP Talaro. American Society of Microbiology. MicrobeLibrary.org. Focus on Microbiology Education, Summer, 2007.
 - Harbour, Deborah V., Review: Microbiology: An Alternate Edition with Diseases by Body System. RA Bauman. Book Review,. American Society of Microbiology. MicrobeLibrary.org. Focus on Microbiology Education, Summer, 2007.
 - "Antibiotic Resistance Genes in Las Vegas Valley Bacteria", A Dhalai, S Harger, D Ortega, R Sottile, K Kimberley, DV Harbour, Proceedings of the Arizona-Nevada Academy of Science 60th annual meeting, College of Southern Nevada, Las Vegas, April, 16, 2016.
 - "Identification and Screening Environmental Bacteria for Production of Antimicrobial Agents", A Word, K Kimberley, DV Harbour, Proceedings of the Arizona-Nevada Academy of Science 60th annual meeting, College of Southern Nevada, Las Vegas, April, 16, 2016.
 - "Environmental Bacteria: Producing Broad-Spectrum Antimicrobial Activity", J Monk, K Kimberley, DV Harbour, Proceedings of the Arizona-Nevada Academy of

Science 60th annual meeting, College of Southern Nevada, Las Vegas, April, 16, 2016.

- "Mapping Antibiotic Resistance Genes in Las Vegas Soil". Katie Velez, Keely Biggs, Aziza Dhalai, Cristian Pascasio, Kendra Kimberley, Deborah V. Harbour. Spring 2017 Student Undergraduate Research Symposium, UNLV April 2017.
- Deborah V. Harbour "Student-Centered Teaching of Core Concepts in Microbiology as a Method of Active Learning; Microbrew Presentation, 21th Annual American Society of Microbiology Conference on Undergraduate Education. Danvers, Massachusetts, May, 2014.
- Kaveh Zarrabi, Patrick Leary, Heidi Porter, and Deborah V. Harbour. "Student Research at a 2-Year College Using Biology and Chemistry in a Team Building Approach". Journal of Micro and Biol Education. 2010. Vol. 11:1. p 81.
- Ruth Gyure, Deborah V. Harbour, Liliana F. Rodriguez, and David R. Wesner. The Role of the American Society for Microbiology in Science Education Reform: The Committee on K-12 Education. 16th Annual American Society of Microbiology Conference on Undergraduate Education. Colorado State University, Fort Collins, CO, May 29, 2009.
- Kaveh Zarrabi, Noppawen Nitrosesatien, Jung Jae Koh, Suheir Naserddin, Eva Abanyan, Maxym Myroshnychenko, James Estevez, Deborah V. Harbour, and Heidi Porter. "Antibacterial Potential and GC-MS Studies of Select Medicinal Plants of Mojave Desert". American Chemical Society 64th Northwest Regional Meeting, Pacific Lutheran University, Tacoma, WA, June 28 - July 1, 2009

▪ **Presentations**

- ASMCUE meeting May 2010, San Diego presentation of poster "Undergraduate Research at a 2 year institution.
- Poster Presentation at 4th Annual Poster Fair, CSN, Spring 2017 convocation on Student Success "Ongoing Undergraduate Group Research Projects", January, 2017.
- "Undergraduate Group Research Projects" Poster presentation at 3rd annual Student Success Poster Fair, January 2016.
- Invited Formal Seminar "Research career and research at CSN with students", Community of Practice grant from NASA, May 2016. Guides research students in presentations.
- Cape Workshop "Use of Case Studies in Science Teaching" Fall 2015.
- CAPE Workshop "Achieving High Course Rate Completion While Maintaining Academic Rigor and Avoiding Grade Inflation" Presented January 17th and January 18th at Spring Convocation, 2013
- "Research Problems Enhance Critical Thinking Skills" Harbour, DV, M Chabin, J Cordell, G Incaviglia, K Kimberley, J Monk, M Moore, B Papelino. Poster Presentation, Second Annual Student Success CSN Student Success workshop 2015.
- "Student-Centered Teaching of Core Concepts in Microbiology as a Method of Active Learning", Deborah V. Harbour, Microbrew Presentation, ASMCUE, Danvers, MA, May 14-18, 2014.

- “Engaging Students with Inquiry Based Student Directed Research Projects” Harbour, DV, Short, M, Papelino, Arevalo Moreno, A. Poster Presentation, First Annual Student Success CSN workshop 2014.
- Kaveh Zarrabi, Heidi Porter, Patrick Leary, and Deborah V. Harbour. “Student Research at a 2-Year College Using Biology and Chemistry in a Team Building Approach”. 17th Annual ASM Conference on Undergraduate Education, Poster Presentation, San Diego, CA, May 22, 2010.
- “Writing Lab Reports”, Deborah V. Harbour. English Department Class Seminar, College of Southern Nevada, Las Vegas, NV, May 6, 2010.
- “Natural Selection and the Rise of Superbugs”, Deborah V. Harbour., Seminar CSN’s First Science Lecture Series, November 6, 2009.
- Ruth Gyure, Deborah V. Harbour, Liliana F. Rodriguez, and David R. Wesner. “The Role of the American Society for Microbiology in Science Education Reform: The Committee on K-12 Education”. 16th Annual ASM Conference on Undergraduate Education, Poster Presentation. Ft Collins, CO. May 29, 2009.
- “Natural Selection and the Fight Against Ingenious Microbes”, Conversations with the Faculty, College of Southern Nevada Library, October, 2007
- “Microbial Disease and Antibiotic Resistance”, Nevada Biomedical Student Pipeline Program (Nevada INBRE), College of Southern Nevada, July, 2007
- **CSN Service and Major Committees**
 - Faculty Senate Curriculum Committee Aug 2007 - May 2010
 - Chair - School Curriculum Advisory committee through May 2010; ex-officio member through December 2010
 - Campus Climate Survey Committee - as per Mike Richards , 2011-2012
 - Scholarship Committee for All USA Academic Team Program (2010, 2012, 2014, 2016)
 - CSN Honors Program Council - 2009 - current
 - Tenure Committee 2010: Cynthia Shroba
 - Tenure Committee 2011: Simone Brito
 - Tenure Committee 2015: Marcela Cortes
 - Search and Hiring Committee Microbiology Faculty Position Fall - Spring 2011
 - Search and Hiring Committee Microbiology Faculty Position Fall – Spring 2009
 - Search Committee Biology Faculty Fall, 2016– Spring 2017
 - Faculty Senator Biological Sciences, CSN 2011
 - Faculty Senate Academic Standards Committee – 2011-2013 – present
 - Faculty Senate Sabbatical Committee - 2012 – present
 - Faculty Senate Instructional Technology committee - 2012 - 2014
 - Co-Chair - Academic Integrity Appeals Board - 3 cases in June 2012
- **Community Service**
 - Science Olympiad March 1st, 2008 (Epidemiology B and C groups)
 - Future College Days (April 25th, 2008), Sept 26, 2008 (Microbiology)
 - Area Health Education Center (Health Careers Occupational Program) – June 4th, 2008 (Lab safety and microscope)
 - Nevada Biomedical Pipeline (June – July 2008, 2009)

- Nevada Bowl Middle School Scientific Judge (2/5/2011 and 3/3/2012)
- CSN Science and Technology Expo Microbes and Society – April 2007- 2017
- Holiday Angel Program CSN - December 2012 to present
- Main Faculty Advisor and Founding Faculty member Biology Club 2011 – 2012; sell lab coats as fundraiser – 2012 – present.
- Grand Awards Judge Category Microbiology, Intel International Science Fair, Los Angeles, CA, May 10-11th, 2011.
- Participant Panel Discussion “Science Education”, Silverado High School, Las Vegas, NV, January 15th, 2010
- Science Olympiad Event Supervisor - Disease Detective Divisions B and C competition Summer 2007
- Volunteer Tutor Math and Science Resource Lab, CSN, Las Vegas; 2008, 2009, 2015
- **Curriculum Development and Assessment**
 - Faculty Contributor NIH Idea Networks for Biomedical Research
 - BIOL 251H Lead Faculty and Lab Coordinator 2008 - present
 - Author 251H lab for all honors microbiology lab materials 2008 – present
 - Author 251 lab for all general microbiology labs materials – 2010 – 2015.
 - Biol 299 - Bioinformatics course; access National Center for Biotechnology Information (NCBI) and Joint Genomics Institute (JGI) sites for demonstration to student to begin use.
 - Developed podcast technology to assist student learning by hearing. Begun in 2010 – present
 - Incorporate Bioinformatics lectures and exercises into BIOL 299 and BIOL 251H; 2014 -2015
 - Incorporate new discoveries into BIOL 251 and BIOL 251H courses, including novel vaccines, emerging infections, microbiome and health, biofilms, chronic infection.2013-2016.
 - BIOL251 Lab Lab Coordinator 2010 – 2013
 - Develop new lab exercises into BIOL 251 and BIOL 251H including viral fingerprinting, Multiplex PCR, RT PCR, techniques and Latex agglutination. 2011 – 2016.
 - Participate in “Network for Integrating Bioinformatics into Life Sciences Education” Program at CSN ; 2015 – present
 - Incorporate QM rubric into online BIOL 251 course. 2014 – 2016.
 - Participant in Community College Survey of Student Engagement (CCSSE), a national survey in BIOL 251 and Biol 251H, March 22 and 23, 2017.
 - Assessment participation in College of Southern Nevada COURSE CURRICULUM MAP for BIOL 251H provided by Assessment Coordinator December 2016.
 - Completion of Achieve the Dream Capacity Assessment Tool online research tool, March, 2017.

- **Grants**

- Consultant on UNLV NIH REU "Environmental Microbiology" Summer Research Program for Undergraduates. Two CSN students accepted to this program, Maryknoll Palisoc and Nisarg Patel.
- Letter of Support for UNLV NSF REU PROPOSAL Research Experience for Undergraduate Students and Science Teachers application August 2012.
- Consultant on UNLV NIH grant "Microbes and Evolution" for undergraduate research began in August 2014 - present. Three CSN students accepted, Guillermo Michel, Cale Seymour, Arinola Adegboruwa.
- Contributed to Grant on "Next Generation Sequencing" by UNLV submitted to the NSF in January, 2015. Went to prepare initial proposal.
- Contributed to success of initial submission of NASA COP grant awarded to CSN. Worked with Rosemary West to get Pre-Proposal accepted.
- Research on Antibiotic Discovery, Native plants and Biofilm analysis, and Resistance genes in Las Vegas and Mohave Desert area. Use of Nevada Genomic Center for analysis of DNA. BIOL 299 course.
- Host to Dr. Ai Sun Tseng research presentation to CSN students and faculty "Why Frogs? Understanding Tissue Regeneration and Environmental Toxicity by Studying Tadpoles", May 1st, 2015.
- Contributor on Grant on "Next Generation Sequencing" by UNLV submitted to the NSF. Contributed to mentoring student research work on NASA COP project.
- Nominee for "Excellence in Research Award" CSN 2015.

- **Membership in Professional or Service Organizations**

- American Society of Microbiology - Emphasis on Microbiology Undergraduate Education
- American Association for Advancement of Science
- International Society of Infectious Diseases (Harvard ProMed)
- American Chemical Society

Fred Jackson

- **Degrees**
 - 1978 BS Zoology University of Wyoming
 - 1982 PhD Biomedical Science University of Texas Graduate School of Biomedical Sciences
- **Conferences Attended**
 - Author on 50+ presentations at National and International Conferences
- **Publications**
 - Author on 12 papers in Scientific Journals
- **Major CSN Service and Committee Work**
 - Faculty Senate Chair 2000-2001
 - Department Chair for Biological Sciences 2007-2013
 - Interim Chair for Automotive Technology Program (2011-2012)
 - Chair of several search committees
 - Chair of several faculty senate and institutional committees

Shannon Larson

- **Degrees**
 - 1999 BA Biology
 - 2003 MS Biology
- **CSN Service and Major Committees**
 - Travel Committee Chair 2013-2017
 - Academic Standards Committee
 - Achieving the Dream 2014-2016
 - Numerous Search Committees
 - Bio 223 and 224 Lead Faculty
 - Re-write of 223 and 224 lab manual
 - INBRE Instructor
- **Additional Training and Service**
 - Search Committee Chair Training
 - Search Committee Training
 - Quality Matters
 - Safe Zone training

Pam Lum

- **Degrees**
 - 2000 PhD Biology
 - 1996 MS Biotechnology
 - 1993 BS Plant Biology
 - 1993 BA Asian Studies
- **Conferences Attended**
 - Dec. 2013 American Society of Cell Biology
 - Aug. 2012 26th Annual Symposium of The Protein Society on August 5-8th, 2012
 - Dec. 2013 American Society of Cell Biology
- **CSN Service and Major Committees**
 - Nevada INBRE (IDeA Network of Biomedical Research Excellence) Biomedical Exploration Workshop; 5 weeks in summer 2011 – present
 - Sabbatical Committee, College of Southern Nevada, 2012-present
 - Environmental Strategies Committee, College of Southern Nevada, 2011-2015
 - Lead Faculty to Nevada Collaborative Teaching Improvement Program, local elementary schools, CSN and UNLV, 2012-2015
 - General Biology Instructor Search Committee, College of Southern Nevada, 2011-2012
 - Microbiology Instructor Search Committee, College of Southern Nevada, 2010-2011
 - Biology Journal Club, College of Southern Nevada, 2011-2012
 - Green Initiative Committee, College of Southern Nevada, 2010-2011
 - Faculty Senate, College of Southern Nevada, 2011
- **Grant Awards, Presentation and Community Service**
 - 2013-2015 Stohlmann, M. (PI) The Nevada Partnership for Effective Mathematics and Science Teaching and Learning. Funded by Nevada Collaborative Teaching Improvement Program (NeCoTIP) through the U.S. Department of Education. Science Content Consultant, \$4,000/year
 - 2012-2013 Giorgis, C. (PI) and Lum, P. (Co-PI) Children's Literature, Mathematics and Science (CLaMS): Creative Connections Across Content Areas. Funded by Nevada Collaborative Teaching Improvement Program (NeCoTIP) through the U.S. Department of Education, \$5,600
 - 2013 Model minority and other stereotypes. Panel speaker for College of Southern Nevada President's Forum for Asian Pacific-Islander (API) Heritage Month, Las Vegas, NV 2013
 - 2012 Greening CSN. College of Southern Nevada Green Tech Festival speaker, Las Vegas, NV
 - 2011 Renewable energy for a sustainable future. Nevada Science Bowl keynote speaker, Henderson, NV
 - 2013-2016 Science fair judge for local schools

Matthew Mahrt

▪ Degrees

- 1988 BS Biology
- 1993 MS Statistics
- 1995 MS Biology
- 2010 PhD Wildlife Science

▪ CSN Service and Major Committees

- Chair of Biological Sciences, July 2012 – present
- Member, Faculty Senate Budget Committee, July 2015 – present
- Member, All-College Work Climate Committee, July 2013 –present
- Member, Strategic Enrollment Planning Committee on Scheduling, July 2015 – present
- Instructor, INBRE Biomedical Workshop, January 2011 – present
- Lead Faculty and Lab Coordinator for BIOL 189, July 2009 – July 2012
- Member, Faculty Senate Policy Review Committee, July 2010 – July 2013
- Member, Faculty Senate Curriculum Committee, July 2009 – July 2012
- Chair, Ad Hoc Faculty Senate Workload Committee, July 2010 – July 2011
- Chair, Ad Hoc Faculty Senate Bookstore Advisory Committee, January 2009 – July 2010
- Member, Search Committee for Academic Counselor in Science and Mathematics, spring 2016
- Member, Search Committee for Academic Counselor in Science and Mathematics, spring 2015
- Member, Search Committee for Member, Search Committee for Academic Counselor in Science and Mathematics, fall 2014
- Chair, Search Committee for Manager - Contracts Administration, spring 2013

▪ Professional Organizations

- Member of American Statistical Association, 1998 - present
- Member of American Association for the Advancement of Science, 1998 – present

Chelsey McKenna

- **Degrees**
 - 2012 PhD Biochemistry and Cell Biology
- **Publications**
 - Created new Biology 101 Lab Manual
 - Sema3A maintains corneal avascularity during development by inhibiting Vegf induced angioblast migration. Chelsey McKenna, Ana Ojeda, James Spurlin, Sam Kwiatkowski, Peter Lwigale. 2014. Developmental Biology
 - Distinct roles for neuropilin1 and neuropilin2 during mouse corneal innervation. Chelsey McKenna, Ravi Munjaal, Peter Lwigale. 2012. PLoS one
 - Innervation of the mouse cornea during development. Chelsey McKenna, Peter Lwigale. 2011. Investigative Ophthalmology & Visual Science
- **Additional Training and Service**
 - Applying the Quality Matters Rubric Training 9/30/16
 - Service Excellence Committee
 - Bookstore Advising Committee
 - CARE Complex Ambassador (Homeless Organization)
 - Biology 101 Lab Lead Faculty
 - CSN/Western High School Mentoring Program 08/15-05/16

Lois Merkler

- **Degrees**
 - 1990 BS Wildlife Science
 - 1994 MS Wildlife Science
 - 2004 PhD Biological Sciences
- **Conferences Attended**
 - International Biogeography Society (January 2017) - Tucson, Arizona
 - International Biogeography Society (January 2015) - Bayreuth, Germany – Presentation
 - 94th Annual Meeting of the American Society of Mammalogists (June 2014) - Oklahoma City, OK –Presentation
 - International Biogeography Society (January 2013) - Miami, Florida
 - 92nd Annual Meeting of the American Society of Mammalogists (June 2012) - Reno, NV
 - 91st Annual Meeting of the American Society of Mammalogists (June 2011) - Portland, OR
 - NV Archaeological Association Meeting (April 2011) - Elko, NV
 - NV Archaeological Association Meeting (January 2011) - Alamo, NV
 - International Biogeography Society, Early Career Conference (September 2011) - Oxford, UK
 - 90th Annual Meeting of the American Society of Mammalogists (June 2010) - Laramie, WY
 - International Biogeography Society (January 2009) - Merida, Mexico
 - 89th Annual Meeting of the American Society of Mammalogists (June 2009) - Fairbanks, AK
- **CSN Service and Major Committees**
 - Assistant chair of Biology - Henderson (2014-present)
 - Former Lead faculty for non-majors course (F2011-S2016)
 - Hiring search committees (Carrie, Sonja - 2015)
 - Tenure committees (Carrie, Camille, Sonja)
 - Chair CSN Ethics committee (2011-2016)
 - Biology Club Advisor (2011 - present)
 - 189 Book review committee (2011-present)
 - 095 Book review committee (2011-2016)
 - Biology 189 lab working group (Fall 2011-present)
 - College Fair Booth (Fall, 2011)
 - Annual Science & Tech EXPO (2008 - present)
 - CSN Faculty Advisor
- **Publications**
 - Shrews of the Ruby Mountains, Northeastern Nevada. The Southwest Naturalist 56(1):95-102, 2011.
 - FIRST RECORD OF SOREX TENELLUS FROM UTAH. Great Basin Naturalist - submitted.

- **Community Service**
 - LVVWD Fall & Spring green-ups (2008 - present) - Biology Club
 - Gilcrease - CSN Serves, Day of Service - Biology Club
 - Three-Square Foodbank - Biology Club
 - Trunk or Treat - Biology Club
- **External Professional Service**
 - Board of Directors for the International Biogeography Society (2008 - present)
 - Conducted collaborative small mammal research throughout NV (summer 2008 - present) with CSN students
 - Reviewer - NV NASA Space Grant Scholarships
 - Reviewer - Journal of Mammalogy (2008 - 2012)
 - Reviewer - Journal of Nutrition Gerontology & Geriatrics (2012)
 - Reviewer - Western North American Naturalist (2008 - 2012)
 - Reviewer - Northwestern Naturalist (2012)
 - Reviewer - American Midland Naturalist (2008 - 2012)
 - Student Evaluations - American Society of Mammalogists (2008 - present)
 - Student Evaluations - International Biogeography Society, Early Career Conference (September 2011) - Oxford, UK

Rhett Michelson

- **Degrees**
 - 1993 BS Biology/Public Health
 - 1999 PhD. Physiology
- **Conferences Attended**
 - Stem Cell Technologies Workshop, 2015
 - Arizona-Nevada Academy of Science Annual meeting, 2016
 - Regent's Academy, 2006
- **CSN Service and Major Committees**
 - Lead faculty, allied health introductory course (BIOL 189)
 - Laboratory coordinator, allied health introductory course (BIOL 189)
 - Lead faculty and laboratory coordinator, biological sciences program
 - College of Southern Nevada Strategic Vision Committee
 - Website developer and administrator, CSN Biological Sciences Department
 - Website developer and administrator, INBRE Southern Nevada Pipeline program
 - Board of Governors member and website developer, Arizona-Nevada Academy of Science
 - Chair, faculty hiring committee, faculty hiring committees
 - Chair, faculty tenure committee, faculty tenure committees
 - Academic Technology Advisory Committee (ATAC)
 - IBC committee for recombinant DNA at the Nevada Cancer Institute
 - Salary and benefits committee
 - Presidential Ad-hoc committee for college restructuring
 - Faculty sabbatical selection committee
 - Student grade appeals committees
 - Distance education standards committee
 - Faculty senate representative for the School of Science and Math
 - Instructor and designer for CSN Science Olympiad
 - Poster publication: "Resolving phylogenetic relationships and phylogeographic processes in a complex group A lesson from pine species" Presented at Evolution, 2013.

Chuck Milne

- **Degrees**
 - 1977 PhD Entomology
 - 1972 MS Genetics
 - 1969 BA Biology
- **CSN Service and Major Committees**
 - Currently member of the College Work Climate Climate Committee
 - Chair of the Faculty Senate Salary & Benefits Committee
 - Co-chair of the Adjunct Faculty Survey Subcommittee
- **Community Service**
 - Current mentor to residents in a substance abuse program at the Las Vegas Rescue Mission

Camille Naaktgeboren

- **Degrees**
 - 2003 BS Biology
 - 2005 MS Biology
 - 2007 BS Psychology
 - 2011 PhD Biology
 - Certificate in Renewable Energy (in progress)
 - Certificate in Infection Prevention (in progress)
 - PhD Public Affairs (in progress)
- **Conferences Attended**
 - Human Trafficking Survivors Forum (2014)
 - About Internet Sex Offenders (2016)
 - Achieving the Dream Conference (2015)
 - Industrial Areas Foundation Organizer Training (2013)
 - Sexually Exploited Youth Training (2013)
- **CSN Service and Major Committees**
 - Faculty Senate Salary and Benefits
 - Faculty Senate Chair
 - 251 Laboratory Coordinator
 - Analogs for Extremophiles Principle Investigator
 - Engaging Minority Students Principle Investigator
 - Faculty Senate Chair-Elect
 - Faculty Senate Past-Chair
 - Biology Department Hiring Committee Member 2015
 - Administrative Faculty Association Executive Committee Member
 - Faculty Senate Executive Committee Member
 - Faculty Senator
 - INBRE Instructor
- **Other Community Service**
 - Rape Crisis Center Office Volunteer
 - Rape Crisis Center Instructor
 - Girl Scout Troop Co-leader
 - Nevada State Legislative Work: 2013, 2015, 2017
 - League of Women's Voters Board Member
 - Salvation Army Seeds of Hope Volunteer
 - The Embracing Project Interviewer/volunteer
 - Volunteer with local organization assisting refugees with resettlement (this is left unnamed in this document for security reasons)
 - Nevadans for the Common Good Leader
 - Board member of Women's League of Voters
 - Speaker at 2016 CSN Women's Conference
 - Speaker at 2012 CSN GreenTech Fest
 - United States Department of Justice Grant Reviewer

Dawn Nelson

- **Degrees**
 - 1992 MS Biology – Animal Behavior
- **Conferences Attended**
 - 2010: 3rd Annual CSN Great Online Teachers Retreat
 - 2011: Science: Becoming the Messenger, National Science Foundation
- **Major CSN Service and Committee Work**
 - 2014 and 2016: Presented CAPE Workshop; Understanding And Teaching Introverted Students
 - 2012: Achieving The Dream, Data Collection Committee
 - 2011-2012, 2014-present: Academic Standards Committee
 - 2011: Chair of Tenure Committee for Heidi Porter
 - 2010-2011: Lab Coordinator for Biol 101 Lab
 - 2010-2011: Lead Faculty for Non-Majors Courses
- **Additional Training and Community Service**
 - 2016: Participated in CAPE Workshop 'Quality Matters'
 - 2017: Participated in CAPE Workshop 'Classroom Assessment Techniques (CATs)'
 - 2010-2012: Board of Directors of the Mojave Desert Heritage and Cultural Society, Goffs California
 - 2017: Presented the talk 'What's It Like Being a Bug' to employees of Red Rock Canyon National Conservation Area.

Heidi Porter

- **Degrees**
 - 2007 PhD Microbiology
- **Conferences Attended**
 - CSN Adjunct Impact Conference Fall 2015. Fall 2016
 - ASMCUE (American Society for Microbiologists Conference for Undergraduate Education. Spring 2009
 - CUR (Conference for Undergraduate Research) Winter 2013
 - ASMCUE (American Society for Microbiologists Conference for Undergraduate Education. Spring 2011
- **Memberships**
 - Member of ASM (American Society of Microbiologists) 2008-2016
 - Member of ACHA (American College Health Association 2015-2016
- **CSN Service and Major Committees**
 - Professional Advancement Committee (Faculty Senate) 20011-2013
 - Achieving the Dream Data Committee 2010?
 - Director of INBRE programs @CSN 2009-2013
 - Coordinator of Biomedical Exploration Workshop 2009-2013
 - Core Concepts/Bootcamp Workshop 2011
 - Biology 251 Lab and Lecture Corrdinator 2015-2017
 - Undergraduate Research mentor with Chemistry 2008
 - Undergraduate Research mentor with NASA COP grant 2016
 - Faculty Consultant NASA COP grant 2016-2017
 - Science Expo Volunteer in Microbiology 2008-2017
- **Community Service**
 - Science Fair Judge INTEL ISEF International Science Fair 2009
 - Go to College Nevada Visits to Local High School 2011?
 - Science Presentations to Andre Agassi School 2016-2017
 - K-12 Teacher Training in Microscopy 2013
 - Science Presentation and Activity with CSN GEAR-UP 2017

Carrie Preite

- **Degrees**
 - 1995 degree (BS) in marine biology – Texas A&M, Galveston
 - 2002 Masters degree (MS) in aquatic biology – Texas State University
 - 2009 Ph.D. in aquatic ecology – James Cook University (Townsville, Australia)
- **Major CSN Committees**
 - Student Success
 - Library Advisory
 - Centers for Academic Success Advisory
 - Travel
 - ad hoc Bio 189 curriculum
 - Biology Faculty Search - chair
- **Additional Training and CSN Service**
 - Lead faculty and Lab Coordinator for Bio 189
- **Conferences Attended**
 - Achieving the Dream 2017

Minnie Schlesinger

- **Degrees**
 - 1993 BS Biology
 - 1996 MS Biology
- **Conferences Attended**
 - HAPS 30th Annual Conference: May 2016 (Atlanta, GA)
 - “Human Skin as a Model Circulation for Examining Mechanisms of Microvascular Dysfunction.”
 - “Sometimes There Are Zebras: Challenges in the Investigation of Emerging Zoonotic Diseases.”
 - “Cancer Immunotherapy: From Bench to Bedside”
 - “The Many Roles of Skin.”
 - “Effective Teaching and Learning: Overview of Research and Tools to Use to Reach the Millennial”
 - “Metacognition – Getting Students Involved in Their Own Learning Process”
 - “The Biology of Sex: Myths and Facts.”
 - “A “Less in More” Approach to Technology in the Classroom”
 - “I Don’t Think They Hear What I Am Saying! How to Help Students Conceptualize Difficult Material”
 - HAPS 29th Annual Conference: May 2015 (San Antonio, TX)
 - “Visualization and the College Anatomy and Physiology Student: How Instructional Practice Can Support Learning.
 - “Qualitative Research Methods and Anatomy Education – getting to the meaning of data.”
 - “The Challenges of Educational Research, or Navigating Your Way through Grant Proposals, Reviews, and IRBs on Your Way to a Published Project.”
 - “Anatomists and Physiologists Preparing for Lifelong Educational Scholarship.”
 - “Preclinical and Translational Studies Dissecting Chronic Alcohol Modulation of HIV Disease.”
 - “Teaching Naked: How Moving Technology out of your College Classroom will Improve Student Learning.”
 - “Unburdening Content Heavy Anatomy & Physiology Courses.”
 - “Identifying the Core Concepts of Human Anatomy.”
 - “Estrogen and Estrogen Receptors in the Aging Female Heart: What Happened to Hormone Replacement Therapy?”
 - “Understanding the Mediastinum and Thoracic Surface Anatomy.”
 - “Graphic Representation in Undergraduate Anatomy and Physiology: Less is More?”
 - “You Can’t Teach Them If You Can’t Keep Them: Improving Retention in Anatomy & Physiology I.”

- “Students Helping Students Engage and Succeed in Anatomy and Physiology: A Pilot Study of Peer-Assisted Learning Program.”
- **CSN Service and Major Committees**
 - BIO 101 Lead Faculty (presently serving)
 - Biology Club Faculty Advisor (presently serving)
 - Biology Faculty Advisor (presently serving)
 - Workload & Evaluation Committee (presently serving)
 - Professional Advancement Committee (presently serving)
 - Convocation Committee (presently serving)
 - Ethics Committee (ended 2016)
 - CSN Tech Expo: "Cool Gross Dead Stuff" (participated & prepared exhibit)
 - CSN Connections
 - CAPE Presentation, Fall 2014: "Nutrition & Work Productivity: How What You Eat Could Affect Your Job"
 - CSN Recruitment Fair
 - BIO 101 Lab Manual Committee (lab manual revision)
 - Program Review Committee
 - Bio 223 and 224 Lab Manual Committee
- **Additional Training and Community Service**
 - Three Squares
 - Convoy of Hope
 - Project 150 (homeless youth center)
 - Science Fair Judge at Coral Academy
 - Science Fair Judge at New Horizons Academy
 - Shannon West Shelter (homeless youth center)
 - Las Vegas Wash, Green Up!
- **Professional Organization Membership**
 - Human Anatomy & Physiology Society (HAPS)
 - American Physiology Society (APS)
 - National Association of Biology Teachers (NABT)
 - National Science Teachers Association/College Science Teachers (NSTA)
- **Professional Development**
 - CAPE Sessions: 79 in total
 - School Specific Faculty Advising Training
 - STEM Outcomes Through Learning Science in Non-Majors Biology, McGraw Hill, Tucson, AZ
- **Student Related Services**
 - Tutoring at the Science Resource Center
 - Exam Review Sessions (BIO 189, 223 & 224)
 - Written recommendation letters for students (INBRE, various professional schools)
- **Community Service**
 - Gilcrease Nature Sanctuary

Denise Signorelli

- **Degrees**
 - 1986 BA Microbiology
 - 1996 PhD Biochemistry and Molecular Genetics
- **Conferences Attended**
 - NISOD 2015
- **CSN Service and Committees**
 - Legislative Action Committee 2016-17
 - Nursing Search Committee 2016
 - Special Hearings committee
 - Faculty Mentor/Counselor 2014-present
 - CLS Steering Committee 2014-present
 - Previously Chair of Academic Standards Committee
 - 4 years member of Academic Standards
 - 1 year member of CAPE Advisory committee
 - 4 years member of Elections committee
 - Guiding Formation Committee for Science and Math resource center
 - Served on 6 search committees and chaired one
 - Served on 2 tenure committees
- **Additional Training and Service**
 - Funded Externship at Univ of Nevada School of Medicine Cytogenetics Lab
 - Sabbatical and 2 grants for research at Nevada Cancer Institute
 - Nevada EPSCOR fellowship for climate change bioinformatics at UNLV 2013
 - Cold Spring Harbor's Genomic Bioscience Workshop 2011
 - Alan Alda's Science Communicator Boot Camp Stony Brook University 2015
 - Quality Matters Rubric 2013
- **Cape Sessions 2015 – 2017**
 - Reading Concepts in the Classroom
 - Effective use of the Writing Center
 - Advanced Canvas Tools
 - Counseling and Psychological Services for Students
 - Understanding the Autistic Student
 - Active Learning for Adults
 - Critical thinking across disciplines
 - Using if then questions to teach math
 - Writing a winner award
 - Poster session on Teaching and learning (3x)

Judy Stewart

- **Degrees**
 - 1977 BS Biology
 - 1980 MS Cell Biology and Genetics
 - PhD, Higher Education Admin. (in progress)
- **Conferences Attended**
 - Carnegie Foundation Summit on Improvement in Education (2015)
 - Gulf Coast Consortium (2014)
 - American Association of Community Colleges (AACC) Annual Conference (2014)
 - AACC Policy Advocacy Seminar (2013)
 - Texas Association of Community College Trustees Annual Mtg. (2013)
 - NISOD (2012, 2013)
 - Texas Association of Chicanos in Higher Education (2013)
 - University of New Mexico Mentoring Conference (2012)
 - American Association of Community Colleges, 21st Century Commission (2013)
- **CSN Service and Major Committees**
 - Starfish (2016 - present)
 - LMS Selection (2014)
 - Interim Director, Academic Affairs (2014-2015)
 - Interim Dept. Chair (2011 - 2012)
 - Faculty Senate Chair (2007-2008)
 - CSN Accreditation Response Team (2007-2008)
 - Chair, NSHE Council of Senate Chairs (2007-2008)
 - Chair, NSHE Council Compensation Committee (2007-2009)
 - Chair, CSN Distance Education Committee (2005-2007)
 - Chair, CSN Customer Service Satisfaction Committee (2010 - 2012)
 - NSHE RPA Committee (2010-2012)
 - NSHE Personnel Task Force (2010)
 - NSHE Code Review Task Force (2010 - 2012)
 - CSN Rep., Nevada Board, The American Council on Education Office of Women in Higher Education (2007-2012)
 - Founded CSN Youthful Enterprise Scholarship
 - CSN Residency Appeals Committee (2010-2012)
 - Chair, Vice President Administrative Operations Search Committee (2011)
 - Contributor, American Association of Community Colleges, 21st Century Commission Report (2013)
 - Contributing Author, CCCSE Publication - High Impact Practices (2014)
- **Additional Training and Service**
 - CBCSE Methods Training (2017)
 - Center for Community College Student Engagement (CCCSE) - 2013-2014
 - CSN Executive Leadership Institute (2012)
 - University of Texas at Austin - PhD in progress (2012 - present)
 - Gulf Coast PASS (2014)

James Theoret

- **Degrees**
 - 2004 BS Microbiology
 - 2004 BS Veterinary Science
 - 2009 PhD Biology
- **Conferences Attended**
 - 8th International Clostpath meeting 10-2013
- **Publications**
 - Published a book chapter: Clostridial diseases of Animals. Edited by Uzal, Francisco A., Songer, J.Glenn, Prescott, John F., and Popoff, Michel R. Published by Wiley, 2016.
- **Major CSN Service and Committees**
 - Science and Tech Expo (Microbiology) 2017 and 2016
 - Special Hearings Committee 2017-2018
 - Working on the re-write of the Biol251 lab manual

Ray Thweatt

- **Degrees**
 - 1988 PhD Biochemistry
- **CSN Service**
 - New Horizons Science Fair Judge (5/13/16)
- **Additional Training and Service**
 - Prevent Discrimination/Harassment (3/24/16)
 - Academic Integrity (8/24/16)

Lee Vogel

- **Degrees**

- B.S
- MS
- B.Ed
- PhD

- **Conferences Attended**

- Excellence in Education (NSHE conference: Aug 2006)
- Nevada Community College Conference (Truckee Meadows : Apr. 2007)
- National Geographic Expedition (Co-sponsored by NASA: Via Luz Mexico, Dec. 2012)

Brian Wainscott

- **Degrees**

- 1997 M.S Biological Sciences, Illinois State University, Normal, IL

- **Conferences Attended**

- Arizona-Nevada Academy of Science (ANAS) Meeting, April 01, 2017, Glendale Community College, Glendale, AZ. Poster Judge, Closing Speaker, and Attendee.
- Arizona-Nevada Academy of Science (ANAS) Meeting, April 16, 2016, College of Southern Nevada, Las Vegas, NV. Meeting Organizer and Host.
- Arizona-Nevada Academy of Science (ANAS) Meeting, April 18, 2015, Arizona State University Phoenix, AZ. Attendee.
- Association for Biological Science Education (ABLE) Regional Meeting, February 21, 2015, University of California, Irvine, California. Attendee.
- Association for Biological Science Education (ABLE) Meeting, June 17-20, 2014, University of Oregon, Eugene, Oregon. Presenter and Attendee.
- Arizona-Nevada Academy of Science (ANAS) Meeting, April 12, 2014, Northern Arizona University, Flagstaff, AZ. Student Presenter Mentor and Attendee.
- Association for the Advancement of Science (AAAS) Pacific Division Meeting, June 16-19, 2013, University of Nevada Las Vegas, Las Vegas, NV. Presenter and Attendee.
- The Desert Tortoise Council Annual Meeting and Symposium, February 15-17, 2013, Sam's Town Hotel and Casino, Las Vegas, NV. Attendee.
- The Desert Tortoise Council Annual Meeting and Symposium, February 18-20, 2012, Sam's Town Hotel and Casino, Las Vegas, NV. Attendee.
- Association for the Advancement of Science (AAAS) Pacific Division Meeting, June 15-20, 2008, Hawaiian Preparatory Academy, Waimea, HI. Attendee.
- National Clean Energy Summit, August 19, 2008, University of Nevada Las Vegas, Las Vegas, NV. Attendee.
- Association for Biological Laboratory Education (ABLE) Meeting, June 5-9, 2007, University of Kentucky, Lexington, KY. Presenter and Attendee.
- McGraw-Hill General Biology Symposium, Spring 2005, Barton Creek Resort, Austin, TX. Participant.
- Association for the Advancement of Science (AAAS) Pacific Division Meeting, June 13-17, 2004, Utah State University, Logan, UT. Attendee.
- Association for Biological Laboratory Education (ABLE) Meeting, June 3-7, 2003, University of Nevada, Las Vegas, Las Vegas, NV. Attendee.
- Bioneers Meeting, October 29-31 1999, Embassy Suites Hotel, San Rafael, CA. Attendee.

- **Publications**

- Wainscott, B.C. 2016. Surveying forest diversity and health using the point-centered quarter method. Tested Studies for Laboratory Teaching: Proceedings of the 36th Workshop and Conference of the Association for Biological Laboratory Education (ABLE), June 17-20, 2014.

- Wainscott, B.C. 2014. Using the point-centered quarter survey method to introduce students to the use of geospatial data in field biology. Two 3-hr Major Workshops given at the annual meeting of the Association for Biological Laboratory Education (ABLE), June 17-20, 2014, University of Oregon, Eugene, OR.
- Russell, A.D., Aquino, M.I., and B.C. Wainscott. 2014. Influences on native and invasive grass density along First Creek Trail in Red Rock Canyon National Conservation Area. Poster presented by former students at the Arizona-Nevada Academy of Science (ANAS) annual meeting, April 12, 2014, Northern Arizona University, Flagstaff, AZ.
- Wainscott, B.C. 2013. Challenges and successes in exposing community college students to field work and undergraduate research in a new introductory field biology course at the College of Southern Nevada. Poster presented during the American Association for the Advancement of Science Pacific Division meeting, June 16-19, 2013, University of Nevada Las Vegas, Las Vegas, NV. Poster archived in the UNLV Digital Scholarship Archive (http://digitalscholarship.unlv.edu/aaas_pacific_conf/2013/june17/4/).
- Wainscott, B.C., D.L. Nelson, and C. Collumb. 2013. Biology 101 Laboratory Manual. Hayden-McNeil Publishing, Plymouth, MI.
- **Additional Training and Service**
 - Wilderness First Responder Certification (80 hr), NOLS Wilderness Medicine, 2017-2019
 - College of Southern Nevada Distinguished Faculty Award Nominee, Fall 2016
 - College of Southern Nevada Outstanding Researcher Award Nominee, Fall 2015
 - Genomics Approaches in Bioscience NSF Educator Workshop (40 hr), Jan. 05-09, 2015
 - Arizona-Nevada Academy of Science (ANAS) Board Member 2013-current
 - 2013-15 Director at Large
 - 2015-17 President-Elect
 - 2017-19 President
 - 2019-21 Past President
 - Sabbatical, College of Southern Nevada, Spring 2011

Erin Windsor

- **Degrees**
 - 2005 BS Biology
 - 2011 PhD Biomedical Science
- **Conferences Attended**
 - Human Anatomy and Physiology Society May 26-27, 2016
- **Major CSN Service and Committees**
 - Faculty Senate Policy Committee, 2014-2015
 - Senator, Biology 2016-2018.
- **Additional Training and Service**
 - Quality Matters Training

Amy Ziemba

- **Degrees**
 - 1995 BA Biology
 - 1999 MS Physiology
- **Conferences Attended**
 - Arizona Nevada Academy of Science Conf., Spring 2016
- **CSN Service and Major Committees**
 - Summer 2015: 196 lab manual rewrite
 - Fall 2015: 101 lab manual rewrite
 - 2015-2016 Faculty Advisor, Biological Science majors
 - 2016-2017 Writing Center advisory committee (CAS)
 - 2016-2017 SRC Coordinator (Biology representative, CAS)
 - 2017 Science Advisory Committee (CAS)
 - 2017 Job Search Committee (Biological Sciences)
 - 2015-2017 Lead Faculty BIOL095
- **Additional Training and Service**
 - 2017: Search Committee Training
- **Publications**
 - Sandoval, D., Hill, S., Ziemba, A., Lewis, S., Kuhlman, B., & Kleiger, G. (2015). Ubiquitin-conjugating Enzyme Cdc34 and Ubiquitin Ligase Skp1-Cullin-F-box Ligase (SCF) Interact through Multiple Conformations. *The Journal of Biological Chemistry*, 290(2), 1106–1118. <http://doi.org/10.1074/jbc.M114.615559>