

Science and Engineering Department
AUP for Academic Year 2024-2025
October 2023

Describe Department/Unit

Connection to College Mission

The mission of the Science and Engineering Department is to provide the rigorous science foundation necessary for students to achieve the skills, knowledge, intellectual curiosity, and scientific literacy essential for a wide range of professional, technical, and academic careers. For students pursuing careers outside of science, an understanding of the processes and an appreciation for science is provided. The department mission supports the mission of the district and college by striving to provide excellent educational programs, services, and opportunities for transfer and CTE students.

Report on Improvements Made and Gaps Identified in the Prior Year

Student Equity

The Science department adopted the following collegewide Student Success Initiatives.

1. Give a student engagement survey during the first week of class and discuss with students. It gets students thinking about short and long-term goal-making for college and shows instructors are interested in their educational goals. By asking them why are they are in college and what their major is, instructors let students know they expect them to have a reason for enrolling in postsecondary education. Recognizing them by name is a small gesture that can go a long way in making a student feel like an important and valuable participant in your course.
2. Give an early diagnostic assignment with meaningful feedback within the first 10 days of the semester. By providing early meaningful feedback, instructors can help students keep motivated and their eyes on the prize of their college goals. Students want to know where they stand in their individual classes and whether they are on the right track. Early meaningful feedback can also allow students to “course correct” by connecting with additional resources if needed to improve their performance.

The **Student Representation** gaps identified in the Science department are as follows.

During the 2022-23 academic year, **Men** were underrepresented in:

Biology

These students represented **30.5%** of the students in Biology. There were 137 students in this group. By comparison, Men represent 45.2% of the college’s enrollment.

During the 2022-23 academic year, **African American** students were underrepresented in:

Biology

These students represented **4.2%** of the students in Biology. There were 19 students in this group. By comparison, African American students represent 8.6% of the college's enrollment.

During the 2022-23 academic year, **Hispanic/Latino** students were underrepresented in:

Biology

These students represented **38.1%** of the students in Biology. There were 171 students in this group. By comparison, Hispanic/Latino students represent 47.1% of the college's enrollment.

During the 2022-23 academic year, **Financial Aid** students were underrepresented in:

Biology

These students represented **52.6%** of the students in Biology. There were 236 students in this group. By comparison, Financial Aid students represent 59.7% of the college's enrollment.

During the 2022-23 academic year, **First-Time** students were underrepresented in:

Biology

These students represented **5.8%** of the students in Biology. There were 26 students in this group. By comparison, First-Time students represent 14.5% of the college's enrollment.

During the 2022-23 academic year, **Distance Ed** students were underrepresented in:

Biology

These students represented **55%** of the students in Biology. There were 247 students in this group. By comparison, Distance Ed students represent 62.8% of the college's enrollment.

During the 2022-23 academic year, **African American** students were underrepresented in:

Chemistry

These students represented **1.4%** of the students in Chemistry. There was 1 student in this group. By comparison, African American students represent 8.6% of the college's enrollment.

During the 2022-23 academic year, **Hispanic/Latino** students were underrepresented in:

Chemistry

These students represented **27.4%** of the students in Chemistry. There were 20 students in this group. By comparison, Hispanic/Latino students represent 47.1% of the college's enrollment.

During the 2022-23 academic year, **First Generation** students were underrepresented in:

Chemistry

These students represented **16.4%** of the students in Chemistry. There were 12 students in this group. By comparison, First Generation students represent 30.7% of the college's enrollment.

During the 2022-23 academic year, **First-Time** students were underrepresented in:

Chemistry

These students represented **8.2%** of the students in Chemistry. There were 6 students in this group. By comparison, First-Time students represent 14.5% of the college's enrollment.

During the 2022-23 academic year, **Women** were underrepresented in:

Physics

These students represented **18.2%** of the students in Physics. There were 6 students in this group. By comparison, Women represent 53.4% of the college's enrollment.

During the 2022-23 academic year, **First-Time** students were underrepresented in:

Physics

These students represented **3%** of the students in Physics. There was 1 student in this group. By comparison, First-Time students represent 14.5% of the college's enrollment.

During the 2022-23 academic year, **Hispanic/Latino** students were underrepresented in:

Physics

These students represented **24.2%** of the students in Physics. There were 8 students in this group. By comparison, Hispanic/Latino students represent 47.1% of the college's enrollment.

During the 2022-23 academic year, **First Generation** students were underrepresented in:

Physics

These students represented **12.1%** of the students in Physics. There were 4 students in this group. By comparison, First Generation students represent 30.7% of the college's enrollment.

During the 2022-23 academic year, **Women** were underrepresented in:

Physical Science

These students represented **48.1%** of the students in Physical Science. There were 267 students in this group. By comparison, Women represent 53.4% of the college's enrollment.

During the 2022-23 academic year, **First Generation** students were underrepresented in:

Physical Science

These students represented **23.6%** of the students in Physical Science. There were 131 students in this group. By comparison, First Generation students represent 30.7% of the college's enrollment.

During the 2022-23 academic year, **First-Time** students were underrepresented in:

Physical Science

These students represented **9.4%** of the students in Physical Science. There were 52 students in this group. By comparison, First-Time students represent 14.5% of the college's enrollment.

During the 2022-23 academic year, **Traditional** (i.e. on-ground) students were underrepresented in:

Physical Science

These students represented **7.2%** of the students in Physical Science. There were 40 students in this group. By comparison, Traditional students represent 37.2% of the college's enrollment.

The Student Success gaps identified in the Science department are as follows.

We define a gap in Student Success as being more than 5% lower than the collegewide success rate of 78%.

During the 2022-23 academic year, **African American** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **50%**. There were 18 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **American Indian** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **60%**. There were 5 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **Hispanic/Latino** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **71%**. There were 170 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **Economically Disadvantaged** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **69%**. There were 132 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **First Generation** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **64%**. There were 137 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **Financial Aid** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **70%**. There were 233 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **First-Time** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **50%**. There were 26 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **Returning** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **70%**. There were 71 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **Traditional** (i.e. on-ground) students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Biology

The **success rate** for these students was **70%**. There were 199 students in this group. The collegewide success rate was 78%.

During the 2022-23 academic year, **American Indian** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Chemistry

The **success rate** for these students was **67%**. There were 3 students in this group. The collegewide success rate for all students was 78%.

During the 2022-23 academic year, **Filipino** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Physics

The **success rate** for these students was **67%**. There were 3 students in this group. The collegewide success rate for all students was 78%.

During the 2022-23 academic year, **Asian** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Physical Science

The **success rate** for these students was **71%**. There were 7 students in this group. The collegewide success rate for all students was 78%.

During the 2022-23 academic year, **Two or More Race** students achieved a success rate that was more than 5% lower than the collegewide success rate in:

Physical Science

The **success rate** for these students was **56%**. There were 16 students in this group. The collegewide success rate for all students was 78%.

The **Student Completion gaps** identified in the Science department are as follows.

We define a gap in Student Completion as being more than 5% lower than the collegewide completion rate of 89%.

During the 2022-23 academic year, **Men** achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Biology

The **completion rate** for these students was **82%**. There were 137 students in this group. The collegewide completion rate was 89%.

During the 2022-23 academic year, **African American** students achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Biology

The **completion rate** for these students was **78%**. There were 18 students in this group. The collegewide completion rate was 89%.

During the 2022-23 academic year, **American Indian** students achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Biology

The **completion rate** for these students was **80%**. There were 5 students in this group. The collegewide completion rate was 89%.

During the 2022-23 academic year, **First-Time** students achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Biology

The **completion rate** for these students was **62%**. There were 26 students in this group. The collegewide completion rate was 89%.

During the 2022-23 academic year, **Women** achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Physics

The **completion rate** for these students was **83%**. There were 6 students in this group. The collegewide completion rate for all students was 89%.

During the 2022-23 academic year, **First-Time** students achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Physics

The **completion rate** for these students was **75%**. There were 4 students in this group. The collegewide completion rate for all students was 89%.

During the 2022-23 academic year, **First Generation** students achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Physics

The **completion rate** for these students was **75%**. There were 4 students in this group. The collegewide completion rate for all students was 89%.

During the 2022-23 academic year, **Two or More Race** students achieved a completion rate that was more than 5% lower than the collegewide completion rate in:

Physical Science

The **completion rate** for these students was **81%**. There were 16 students in this group. The collegewide completion rate for all students was 89%.

Outcomes Assessment: Loop-Back Improvements Made

Outcomes Assessment: Results of Last Year's Assessments

Target Met?

Did Not Assess

Outcomes Assessment: Missed Targets

Need to upload the department's SLO data into the college's new Curriculum and Assessment Management System (CAMS)

Type:

SLO

Target Missed/Gap Detected:

Need to upload the department's SLO data into the college's new Curriculum and Assessment Management System (CAMS)

Type of Gap:

Other (explain in Analysis).

Analysis and Plan for Improvement:

Need to upload the department's SLO data into the college's new Curriculum and Assessment Management System (CAMS)

Anticipated Semester for Implementing Planned Improvements:

Fall 2023 and Spring 2024

Anticipated Semester of Next Assessment:

Outcomes Assessment: Schedule of This Year's Assessments

Program Review

General Sciences

Year of Last Program Review:

2023

Actions Taken in the Prior Year to Address Strategies:

The goals were recently defined.

Strategies Still to be Addressed:

2-year Goals:

1. Upload current and future SLO data into the college's new Curriculum and Assessment Management System (CAMS)
2. Hold a Science question-and-answer session with Cerro Coso students each semester to answer their science degree and/or career questions.
3. Hold yearly meetings with relevant members of Cerro Coso's Counseling department to hear and provide feedback regarding the Science department and the students enrolled in science courses.
4. Reclassify the Science department's Lab Tech I position to something that better matches the actual duties of the position.

5-year Goals:

1. Meet with an Associates Degree for Transfer (ADT) expert to discuss the current status of unit heavy ADTs
2. Determine the feasibility of offering some courses in the General Sciences program as "Hybrid" courses.
3. Meet with relevant Cerro Coso administrators to discuss the feasibility of expanding Science course offerings at the ESCC and Tehachapi campuses.

Last Year's Initiatives

Provide more Introductory Science Courses Online

More sections of preexisting online science courses are currently being offered online. The CORs of additional science courses have not been modified for online instruction yet though. Any additional science course modifications will be based on the judgement(s) of the department's various content knowledge experts.

Create a Long Term Schedule of Science Courses for the Tehachapi Campus

BIOL C101 and BIOL C105 are now offered at Tehachapi in Spring semesters. Expanding more course offerings are Tehachapi is largely constrained by the limited number of adjunct instructors available at Tehachapi and the limitations of the laboratory classroom at Tehachapi.

Reminder of Initiatives for the Current Year

Reminder of Initiatives for the Current Year

Feasibility Discussion: Physical Science Faculty Position for the Incarcerated Student Education Program

Feasibility Discussion: Reclassify the Science department's current "Lab Tech I" position to a "Lab & Safety Coordinator"

Plan Initiatives for Next Year

Initiatives for Next Academic Year

Reclassify or Replace the Science department's current "Lab Tech I" position

Is this part of a multiyear initiative?

No

Specific Action Steps to be Taken:

A reclassification request for the Science department's "Lab Tech I" position was included in the Science department's 2023-2024 AUP. Since then, the reclassification request was denied.

The goal was to reclassify the Science department's current "Lab Tech I" position to a "Lab & Safety Coordinator" position.

Without the reclassification, the department will need to replace the current single "Lab Tech I" position with both a "Lab Tech I" and a "Lab/Safety Tech" position. These two positions are needed to align the contract language with the job's actual responsibilities. The "Lab Tech I" position would cover generic lab responsibilities, while the "Lab/Safety Tech" would cover chemistry responsibilities.

Early Observational Data, or "Lead" Measure(s):

The current "Lab Tech I" employee plans to leave the position. To align the contract language with the job's actual responsibilities, both a "Lab Tech I" and a "Lab/Safety Tech" must be hired. The "Lab Tech I" position would cover generic lab responsibilities, while the "Lab/Safety Tech" would cover chemistry responsibilities.

Does the department request help developing these instruments?

No

Institutional Performance Data, or "Lag" Measure(s):

This initiative will be successful when both a "Lab Tech I" and a "Lab/Safety Tech" are hired.

Person Responsible:

Science department

Unit gap or institutional goals addressed:

It addresses a 2- or 5- year program review strategy

Help Transition a New Department Chair

Is this part of a multiyear initiative?

No

Specific Action Steps to be Taken:

When the current department chair steps down, a new department chair will be elected. During the transition, the current department chair will help the new department chair.

Early Observational Data, or "Lead" Measure(s):

A new department chair is elected. The current department chair helps the new chair when needed.

Does the department request help developing these instruments?

No

Institutional Performance Data, or "Lag" Measure(s):

The department has a new department chair who is independently functioning.

Person Responsible:

The current department chair

Unit gap or institutional goals addressed:

Other. Explain below

Successfully transitioning to a new department chair helps the institutional effectiveness of the department.

Help the Library Build an Online Reserve of Science Textbooks

Is this part of a multiyear initiative?

No

Specific Action Steps to be Taken:

The Library is currently building an online reserve of scanned textbooks. These scanned textbooks can be accessed online by students, which reduces their textbook costs to zero. Faculty in the Science department will work with the Library to build the online reserve of scanned science textbooks.

Early Observational Data, or "Lead" Measure(s):

Faculty in the Science department are working with the Library to build the online reserve of scanned science textbooks.

Does the department request help developing these instruments?

No

Institutional Performance Data, or "Lag" Measure(s):

The Science department's courses have their textbooks available in the Library's online reserve of textbooks.

Person Responsible:

Science department faculty

Unit gap or institutional goals addressed:

It addresses a gap in student equity

Evaluate Resource Needs

Facilities

The lab chairs in the IWV science lab rooms (330 MB, 331 MB, and 334 MB) need to be replaced soon. These chairs are approximately 16 years old. The pneumatic pistons for the majority of the chairs no longer function as intended (i.e. they get

stuck). The hard foam material that the chairs are constructed out of are also starting to deteriorate (i.e. the foam is cracking and some particles are falling off). Because the chair seats are all the same size, they also do not accommodate students of all sizes (i.e. larger size seats should be an option).

The compressed air and vacuum lines in the IWV chemistry lab room (330 MB) need to have an accessible on/off switch. The compressor/pump that runs the system is located above the science lab rooms on the roof of the Main Building. When the compressor/pump is running, it creates an audible hum and vibration throughout the north-east corner of the Main Building's 3rd floor. This affects the lab rooms and the faculty offices in that area of the building. If an on/off switch was accessible by the chemistry instructor, the compressor/pump would only have to operate when needed, instead of during all hours of class instruction.

Lab room 212 at Mammoth has natural gas lines for the lab tables. The instructor requests that the gas lines have an easily accessible shut-off switch/button. The shut-off valve is currently located at ceiling level in front of the lab room.

Information Technology

The projector in room 330 Main Building is noticeably dimmer than other projectors. Also, the remote control for that projector no longer works. This projector should be replaced or serviced.

Marketing

None

Professional Development

None

Other Needs

Chemistry Requests:

Chemistry instruction has made the following 1-time purchase requests. These requests would improve both the quality and efficiency of chemistry lab instruction.

Frequency: 1-time request

Cost Estimate: \$2,068.20

4 pH Meters: pH meters are crucial instruments for measuring the acidity of solutions, a fundamental aspect constituting about 20% of the chemistry C113 curriculum. These meters are extensively used in experiments that reinforce classroom learning. Unfortunately, our lab currently lacks functioning pH meters. The three available ones are nonfunctional and beyond repair due to insufficient maintenance, especially during the pandemic. pH meters require specialized solutions for their electrodes, which were not adequately replaced. This scarcity hampers both chemistry and biology experiments, underscoring the pressing need for functional pH meters.

Frequency: 1-time request

Cost Estimate: \$4,348.78

2 Spectrophotometers: Spectrophotometers, vital for determining concentrations of colored solutions, are integral to multiple experiments in C111, C101, and C113, and additionally find application in biology experiments. With just two

spectrophotometers, accommodating large lab sections becomes a challenge. In typical labs with over 24 students, waiting times for data collection become excessively long. Last year, instances were recorded where students had to return on a separate day for lack of time to collect data. Increasing the number to four spectrophotometers (we currently have two) would halve data collection time, accommodating the varying speeds at which students prepare their solutions. This addition would significantly enhance the lab experience and facilitate efficient data collection. For comparison, Bakersfield college has 12 spectrophotometers, plus an additional 12 workbenches with spectrophotometer capability. BC additionally does not run any general chemistry labs concurrently, so they do not have a need to distribute their 24 between more than two labs at any given time. Their labs are capped at 24 students, meaning each pair of students would have their own instrument for the entire lab period.

Frequency: 1-time request

Cost Estimate: \$6,376.04

4 Melting Point Apparatuses: Melting point determination is a critical component of C221 and C223 labs, featured in their course outlines. Our lab possesses only one melting point apparatus, causing significant delays for students waiting to measure their samples. With each measurement taking around 5 minutes and the instrument needing to cool between trials, the process is time-consuming. To optimize learning, one apparatus per student pair is necessary. Acquiring three additional melting point apparatuses would eliminate waiting times, ensuring a smooth and efficient lab experience for all students.

Frequency: 1-time request

Cost Estimate: \$45,700.00

1 NMR Spectrometer: Nuclear magnetic resonance (NMR) spectrometers are essential for determining compound structures, a standard component of the C221 and C223 curricula. While a previous instructor utilized external facilities, current circumstances don't permit this option, depriving students of hands-on experience. Acquiring an affordable educational grade benchtop NMR would bridge this gap, enabling students to collect and analyze their own data. Considering the swift data collection process and the instrument's educational value, obtaining one NMR spectrometer would suffice to enhance the lab's educational quality significantly. For comparison, Bakersfield college has two NMR instruments for their organic course, for which a single section is offered each semester.

Biology Requests:

Biology instruction has made the following 1-time purchase requests. These requests would improve both the quality and efficiency of biology lab instruction.

Frequency: 1-time request

Cost Estimate: \$20,790.00

10 monocular microscopes + 10 binocular microscopes: Currently, we have twelve nonfunctional monocular scopes and eight nonfunctional binocular scopes. The decline in the number of functional scopes is due to the age of our scopes and lack of regular servicing over the last five years. The monocular scopes were purchased before I was hired twenty-five years ago. I'm confident that the scopes are thirty years old. The binocular scopes are over twenty years old. The new scopes we hope to purchase will also last thirty years or more if they are regularly serviced. Failure to have scopes serviced leads to replacement.

Frequency: 1-time request

Cost Estimate: \$4,524.00

1 PCR Thermal Cycler: The department is always striving to meet the evolving needs of our students, stay current with new technologies, and support our strategic goals for educational excellence. A PCR Thermal Cycler is a fundamental tool for amplifying DNA, a key technique in molecular biology used in many careers in biology, biotechnology and medical research. This equipment will enable students to gain hands-on experience with this essential process, thereby enhancing their understanding and skillset which will better prepare them for future job opportunities and research endeavors. The Biology Department at Bakersfield College has been using this instrument in their curriculum. This equipment will be used for at least three of our Biology courses, a total of ~75 students – Biol C105, C111 and C262.

Frequency: 1-time request

Cost Estimate: \$21,448.00

2 Autoclaves: The Science Department is requesting money to purchase new autoclaves for the Bishop and Mammoth sites. The current autoclaves at these sites are outdated models that are too small to carry out the functions required to effectively run courses offered by the science department at this campus. The models requested are similar in price and usage to the autoclave currently in use at the IWV campus.

Frequency: 1-time request

Cost Estimate: \$575.00

3 Infrared Sterilizers: The Bishop ESCC campus does not have an in-line gas source connected to the science lab. This makes running courses that require the use of Bunsen burners such as microbiology difficult. A primary function of Bunsen burners in a microbiology class is to flame sterilize equipment for use in the aseptic transfer and manipulation of microbes. The science department currently uses alcohol candles to perform these tasks, which are slower, less effective, and less reliable than the use of Bunsen burners or the proposed requested equipment. These tools would provide the students and instructor with more updated equipment, and give students access to equipment that can be found in clinical microbiology lab settings.

Frequency: 1-time request

Cost Estimate: \$4,300

1 Laboratory grade refrigerator: Proper storage of perishable laboratory items is critical to the proper functioning of a college laboratory. The ESCC offers multiple biology courses, each with diverse refrigeration requirements. Although the Bishop ESCC site currently possesses a laboratory grade refrigerator, it is too small to be effective for the diverse storage requirements of the course offerings offered at the ESCC. The Science Department requests purchase of a new, larger, more appropriate refrigerator for the ESCC Bishop site. The Refrigerator requested is the current model that was recently purchased for laboratory use at the IVW campus.

Biology Requests:

Biology instruction has made the following recurring purchase request. This request is necessary for lab safety. Without this request, lab instruction cannot take place.

Frequency: Annual

Cost Estimate: \$1,300

Lab Gloves: For unknown reasons, laboratory gloves and protective gear fall within the General Fund's "Non-Instructional Supplies & Materials" account. Without this funding, the funding for gloves and protective gear have to be pulled from the General Fund's "Other Maintenance/Repairs" account. When the "Other Maintenance/Repairs" account is depleted to purchase gloves and protective gear, laboratory equipment cannot be maintained and repaired as needed.

Staffing Requests

1000 Category - Certificated Positions

none

Location:

Justification:

2000 Category - Classified Staff

Reclassify or Replace the Science department's current "Lab Tech I" position

Location:

EKC Tehachapi, ESCC Bishop, ESCC Mammoth Lakes, Ridgecrest/IWV

Salary Grade:

See the justification below.

Number of Months:

See the justification below.

Number of Hours per Week:

See the justification below.

Salary Amount:

See the justification below.

Justification:

This reclassification request was included in the Science department's 2023-2024 AUP. Since then, the reclassification request was denied.

The goal of the reclassification was to reclassify the Science department's current "Lab Tech I" position to a "Lab & Safety Coordinator" position.

Without the reclassification, the department will need to replace the current single "Lab Tech I" position with both a "Lab Tech I" and a "Lab/Safety Tech" position. These two positions are needed to align the contract language with the job's actual responsibilities. The "Lab Tech I" position would cover generic lab responsibilities, while the "Lab/Safety Tech" would cover chemistry responsibilities.

PROPOSED POSITION: LABORATORY & SAFETY COORDINATOR

As it stands, the Science department's "Lab Tech I" position does not encompass all the duties carried out by the individual who holds that

position. Furthermore, all three of the current laboratory related job descriptions listed within KCCD:

LABORATORY TECHNICIAN I:

https://do-prod-webteam-drupalfiles.s3-us-west-2.amazonaws.com/kccdedu/s3fs-public/job_descriptions/Laboratory_Technician_I.pdf

LABORATORY TECHNICIAN II:

https://do-prod-webteam-drupalfiles.s3-us-west-2.amazonaws.com/kccdedu/s3fs-public/job_descriptions/Laboratory_Technician_II.pdf

LABORATORY/SAFETY TECHNICIAN:

https://do-prod-webteam-drupalfiles.s3-us-west-2.amazonaws.com/kccdedu/s3fs-public/job_descriptions/Laboratory-Safety_Technician.pdf

do not match these duties. “Lab Tech I” covers generic lab responsibilities. “Lab Tech II” covers industrial arts, physics, and engineering lab responsibilities. “Lab/Safety Tech” covers chemistry responsibilities. Furthermore, all three of these job descriptions do not acknowledge the necessity of traveling to other satellite campuses at Bishop, Mammoth, and Tehachapi. With these misrepresentations of the current position in mind, it is proposed that the position become recognized as a coordinator role, given that the individual in the position must manage 4 campuses and have a sufficient knowledge of all the scientific disciplines (i.e. Biology, Chemistry, and Physics) to effectively carry out laboratory responsibilities.

BASIC FUNCTION (for the Proposed Lab & Safety Coordinator Position):

Assemble and dismantle chemistry, biology, and physics laboratory experiments; maintain, monitor, and store a variety of chemicals; coordinate and monitor the disposal of hazardous biological and chemical waste materials; visit and coordinate with the Bishop, Mammoth and Tehachapi sites to ensure proper laboratory maintenance and inventory; purchase and inventory all materials required to execute laboratory experiments.

REPRESENTATIVE DUTIES (for the Proposed Lab & Safety Coordinator Position):

Assemble and dismantle chemistry laboratory and classroom experiments; assist in the development and evaluation of laboratory manuals; develop, implement, and maintain a laboratory safety program in compliance with standard regulations; recommend procedural improvements. *E*

Assist faculty and students in the use of a variety of equipment, materials, and supplies in the instructional setting; prepare and issue instructional materials and equipment for classroom demonstrations; maintain computerized records of materials and equipment utilized by students and faculty. *E*

Perform specialized and technical duties to assist in the operation and maintenance of an instructional laboratory; assemble and install new equipment; assure efficient laboratory operations. *E*

Estimate need for and prepare special reagents and precise chemical solutions for laboratory classroom use; maintain related records; assist in the coordination of the use of laboratory facilities; assure the availability of supplies and equipment. *E*

Issue chemistry laboratory equipment to students and staff; inspect equipment for damage upon return; track and report breakage; maintain related records. *E*

Maintain laboratory environment in a safe, clean, and orderly condition; control and maintain hazardous biological and chemical waste materials produced during laboratory experiments; assure proper chemical storage and hazardous waste disposal. *E*

Perform campus-wide hazardous materials safety assessments monthly; assist in the training process of college personnel and students regarding hazardous materials usage; respond to hazardous spills on campus; determine need for professional response; coordinate the legal disposal of hazardous waste following each semester. *E*

Inventory and order new chemicals, dissection specimens, living microbiology specimens and general supplies for Chemistry and Biology laboratories and storerooms; submit justifications and cost estimates; monitor and control expenditures. *E*

Organize Chemistry and Biology storerooms; adjust, clean, maintain and perform minor repairs to equipment; coordinate laboratory equipment maintenance and servicing; maintain related records. *E*

Prepare and maintain various records and reports including hazardous waste reports related to laboratory and stockroom operations and activities as required. *E*

Promote and adhere to all recognized safety practices and standards; maintain MSDS files and oversee its use; issue appropriate PPE to all students and staff; maintain PPE by regularly washing laboratory coats and goggles. *E*

Coordinate with faculty and at staff satellite campuses to ensure proper laboratory proceedings; visit satellite campuses up to two times per semester to clean, reorganize, and restock laboratory materials. *E*

Operate a variety of equipment related to the specialized area of assignment. *E*

Attend and participate in a variety of meetings and special projects as assigned.

Perform related duties as assigned.

KNOWLEDGE AND ABILITIES (for the Proposed Lab & Safety Coordinator Position):

KNOWLEDGE OF:

Operation, preparation, and maintenance of multiple instructional laboratories.

Advanced principles of biology, physics, and chemistry.

Laws, rules, and regulations related to assigned activities.

Materials and equipment used in experiments.

Health and safety regulations.

Principles and practices of providing work direction and training.

Record-keeping and report preparation techniques.

Curriculum, goals, and objectives of the department.

Correct English usage, grammar, spelling, punctuation, and vocabulary.

Oral and written communication skills.

Proper methods of storing equipment, materials, and supplies.

Proper methods of storing chemical and biological hazards.

Proper methods of hazardous waste disposal.

Interpersonal skills using tact, patience, and courtesy.

Inventory methods and practices.

Technical aspects of field of specialty.

Operation of a variety of equipment related to the specialized area of assignment including a computer.

PROPOSED ABILITY TO:

Assemble and dismantle chemistry, biology, and physics laboratory experiments.

Interpret, explain, and apply laws, rules and regulations related to hazardous materials.

Safely clean up and dispose of hazardous materials.

Perform specialized and technical duties to assure efficient lab operations.

Provide information and assistance to faculty and staff.

Properly assemble and store assigned equipment, materials, and supplies.

Issue and receive equipment and supplies.

Maintain equipment in proper working order.

Perform light repairs to equipment.

Perform a variety of chemical balance tests.

Maintain records related to work performed.

Understand and follow oral and written instructions.

Train and provide work direction to others.

Assign and review the work of others.

Meet schedules and timelines.

Work independently with little direction.

Operate a variety of equipment related to the specialized area of assignment including a computer.

Communicate effectively both orally and in writing.

Establish and maintain cooperative and effective working relationships with others.

EDUCATION & EXPERIENCE (for the Proposed Lab & Safety Coordinator Position):

Any combination equivalent to: Bachelor's degree with course work in chemistry, biology, physics, physical science, or a related field and two years of increasingly responsible laboratory experience.

WORKING CONDITIONS (for the Proposed Lab & Safety Coordinator Position):

ENVIRONMENT:

Chemistry/biology storerooms and laboratory environments.

PHYSICAL DEMANDS:

Incorporated within one or more of the previously mentioned essential functions of this job description are essential physical requirements. The chart below indicates the percentage of time

spent on each of the following essential physical requirements.

- | | |
|----------------------------------|---|
| 1. Seldom = Less than 25 percent | 3. Often = 51-75 percent |
| 2. Occasional = 25-50 percent | 4. Very Frequent = 76 percent and above |

- 4 a. Ability to work at a desk, conference table or in meetings of various configurations.
- 2 b. Ability to stand for extended periods of time.
- 4 c. Ability to sit for extended periods of time.
- 4 d. Ability to see for purposes of reading printed matter.
- 4 e. Ability to hear and understand speech at normal levels.
- 4 f. Ability to communicate so others will be able to clearly understand a normal conversation.
- 2 g. Ability to bend and twist.
- 1 h. Ability to lift 25 lbs.
- 1 i. Ability to carry 25 lbs.
- 2 j. Ability to operate office equipment.
- 2 k. Ability to reach in all directions.

HAZARDS:

Exposure to hazardous chemicals, biological specimens, and chemical fumes.

PAY RANGE (for the Proposed Lab & Safety Coordinator Position):

The closest comparable duties and requirements for the proposed “Lab & Safety Coordinator” position are a hybrid of KCCD’s “Lab/Safety Tech” and “Lab Tech I” positions. A pay range of 47.5 is recommended for the proposed position. This pay range is 1.0 higher than KCCD’s “Lab/Safety Tech” position, 5.5 higher than KCCD’s “Lab Tech II” position, and 8.0 higher than KCCD’s “Lab Tech I” position. This increase accommodates for the proposed position’s necessary level of education, experience, and workload (i.e. a hybrid of “Lab/Safety Tech” and “Lab Tech I”) that is maintained across 4 campuses (i.e. Ridgecrest, Bishop, Mammoth, and Tehachapi).

Laboratory Assistance (Part time laboratory technician) at ESCC sites, or reassigned time for full-time science department faculty at ESCC to manage ESCC laboratories.

Location:

ESCC Bishop, ESCC Mammoth Lakes

Salary Grade:

part time

Number of Months:

part time

Number of Hours per Week:

part time

Salary Amount:

part time

Justification:

- The ESCC campuses have continuously operated without on-site laboratory assistance for ESCC faculty since the opening of these sites. Historically, the IWV campus has employed a Laboratory Technician I to assist in maintenance and operations of the science laboratories. The job descriptions of a Laboratory Technician I at the district include the following:
 - Perform specialized and technical duties to assist in the operation and maintenance of an instructional laboratory; prepare various solutions for laboratory activities; assemble and install new equipment; assure efficient laboratory operations.
 - Assist faculty and students in the use of a variety of equipment, materials and supplies in the instructional setting; prepare and issue instructional materials and equipment for classroom demonstrations; maintain computerized records of materials and equipment utilized by students
 - Maintain laboratory environment in a safe, clean and orderly condition; control and maintain hazardous waste materials produced during laboratory experiments; arrange for proper disposal of hazardous waste materials.
 - Order, receive and store supplies, materials and equipment; maintain inventories and assure adequate stock levels; drive a vehicle to pick up and purchase supplies as needed.
 - Adjust, clean, maintain and perform minor repairs to equipment; report major repair needs or arrange for repairs as needed; collect and deposit breakage payments from students.
 - Prepare and maintain various records and reports including hazardous waste reports related to laboratory operations and activities as required.
 - Train and provide work direction to students workers and assigned staff; assign and review work; assist in the selection of new employees.
 - Assist in the coordination of the use of laboratory facilities; assure the availability of appropriate supplies and equipment.
 - Operate a variety of equipment related to the specialized area of assignment.
 - Attend and participate in a variety of meetings and special projects as assigned.

- Historically, laboratory technicians from the IWV campus have come to the ESCC sites approximately once per semester to help with organizational tasks, deliver supplies such as laundered lab coats, and to assist in aspects of waste management. The laboratory technician has additionally helped ESCC faculty to order supplies and to schedule maintenance of equipment. However, due to the lack of an on-site laboratory technician at the ESCC sites, many of the other job descriptions associated with the Laboratory Technician I position have been assumed by the sole full-time faculty member assigned to

the ESCC sites.

- Given that many of these tasks at the IWV campus are at the very least assisted by an on-site Laboratory Technician I, and the responsibilities to carry out these tasks are not completely the assumed responsibility of other science department faculty at the college, the science department feels it is not reasonable nor equitable that the ongoing maintenance, laboratory preparation, organization, and other described tasks associated with running a functional laboratory environment have become the de facto responsibility of the sole full-time science department faculty member at the ESCC sites. This issue is also magnified by the fact that the ESCC consists of two physical sites, each with their own laboratories, effectively doubling these laboratory management tasks.
- The additional laboratory tasks currently taken on by the sole full-time science department faculty require time that could be better utilized towards their job-description-specific instructional and non-instructional services for the college. Therefore, the science department requests creation of a part time laboratory technician I position to assist in the management and maintenance of the two ESCC laboratories. Alternatively, in lieu of the creation of a part-time lab tech I position, the Science Department requests that the full-time science department faculty receive a reasonable amount of reassigned time as part of their load to reflect and acknowledge the time commitment it requires to effectively run and manage the two ESCC laboratories.