Program Review - Overall Report

Instructional: Chemistry

Data Review

2021 - 2024

Overall Trends

What overall trends do you see in success, retention, program of study, educational planning, and awards over the past 3 or more years?

Overall, the success of students in Chemistry courses increased from 65.9% to 68.7% and retention has decreased from 83.1% to 81.8% over the past 3 years. The slight dip in retention rate over the three-year period is likely due to the retention-rate decrease that accompanied the unanticipated switch to on-line instruction in Spring 2020, since the retention rate for students in chemistry courses at Norco College in Spring 2020 was 77.7%.

The students in Chemistry courses have decreased in their rate of receiving less than passing (DF) grades during this time.

The number of students who have declared a major in Chemistry increased from 38 to 72 in 3 years, representing an increase of 89.5%. Of these students, 12.4 % have met with a counselor and developed an educational plan.

The number of students who have completed a degree or certificate in Chemistry increased from 1 to 8 in 3 years. In the most recent year, 8 students graduated. The expected number of students who should get a degree would be approximately 14 (20% of 72). The gap (14-8) in the pipeline of those receiving a certificate versus a degree is approximately six more students.

Disaggregated Student Subgroups

Look at the disaggregated student subgroups in success, retention, program of study, educational planning, and awards for your area. Are there any equity gaps that you will address in the next 3 years?

The data for Chemistry students falls short in two areas. The success of Hispanic females in Chemistry courses was 62.5% versus the overall success of Hispanic females in all courses at Norco College, which was 70.1%. Additionally, Hispanic males had a retention gap in Chemistry courses. The retention of Hispanic males in Chemistry courses was is 80.3% versus the overall retention of Hispanic males in all

Data Review

courses at Norco College, which was 84.1%. It's unclear what led to the decrease in the success rates of Hispanic females over this time period. However, the lower retention rates of Hispanic males may be due to the substantially lower retention rate (70.2%) of Hispanic males in Spring 2020 from the College's transition to online instruction.

If there are any concerning trends over the past 3 or more years, or if equity gaps exist, what is your action plan to address them?

While most of our success and retention data are as good or better than the those from College overall, the Chemistry discipline will continue to monitor these gaps in these areas in subsequent semesters. Additionally, we plan to take the following actions:

- have discipline meetings with all Chemistry instructors to discuss these trends to come up with specific ways to improve these numbers,
- ensure our associate instructors are made aware of equity resources within the District, especially those that are geared toward STEM-related areas, and
- learn what other disciplines that have higher success and retention rates are doing to improve their rates and strive to brings those items into our Chemistry classes.

These will specifically be geared toward improving the success and retention rates of Hispanic students.

Is there a resource request associated with this Data Review? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Assessment Review

2021 - 2024

Section 1: SLO Assessment Status (Based on Dashboard - Assessment Status)

Which Disciplines are included in this Assessment?
CHE

What percent of SLOs in the disciplines you identified above have been assessed?
100.0%

Which SLOs have not been assessed and why? Identify both the Course and the associated SLO(s).
N/A

Section 2: Mapping Status (Based on Dashboard - Mapping Status)

Are all SLOs mapped to at least one PLO?
Yes

If all SLOs are not mapped to at least one PLOs, please explain why.
N/A

Are the appropriate SLOs mapped to GELOs? (If you have a course that is listed in any general education area, it should have at least one SLO mapped to at least one GELO)
No

If the appropriate SLOs are not mapped to GELOs, please explain why.
We are in the process of mapping SLOs to GELOs.

Section 3: PLO Analysis (Based on Dashboard - Analysis: PLO Direct Assessment)

Which Programs are included in this Assessment?
CHE

Please identify the PLO(s) - and name the associated Program(s) - that achieved benchmarks.
CHE-PLO1, PLO2, PLO3, PLO4

To what to you attribute this success?
During the last assessment cycle, we mapped our PLOs onto our SLOs. Thus, when we completed our SLOs, our PLOs were automatically done.

Please identify the PLO(s) - and name the associated Program(s) - that did not achieve benchmarks.
N/A

If there are PLOs that did not achieve benchmarks, what do you plan on doing to improve benchmark attainment?
N/A

Assessment Review

Section 4: Alignment to Career and Transfer

Describe the process used in this area to ensure programs (PLOs) align with career and transfer needs.
We reviewed these PLOs in discussions with our Chemistry counterparts at the other college in the District during the Summer of 2020 and determined that our course PLOs continue to meet our career and transfer needs.

Describe the activities, projects, and opportunities this program offers to support experiential learning and alignment of programs to career and transfer (e.g. capstone projects, portfolios, service-learning opportunities).
Some our general chemistry (CHE-1A/B) laboratories require that students develop their own laboratory procedures to encourage independent thinking and problem-solving skills, which are especially important skills for careers in Chemistry and other science fields. We also just obtained a state-of-the-art nuclear magnetic resonance spectrometer for use in our Organic Chemistry classes, which provides hands-on learning opportunities in instrumentation, which is also directly transferrable to careers in chemistry. Use ACS (American Chemical Society) standardized exams for additional assessment to compare to students nation-wide for Organic and General Chemistry Curriculum.

Without looking at your current PLOs, describe some program outcomes which would best help your students continue on the path towards their workforce and transfer goals (e.g. subject matter expertise, hands on experience, partnerships, etc.).
Having more instruments so that students have more hands-on learning opportunities. Incorporating more inquiry-based experiments in the lab curricula in order to hone their problem-solving skills.

Review current PLOs. Do the outcomes listed above align with the current program outcomes?
Yes.

EMP GOAL 1. Expand college access by increasing both headcount and full-time equivalent students (FTES).

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

- Continue to offer more sections of Chemistry course based on the availability of qualified associate facutly and limited full-time Chemistry instructors and lab space.
- Create new Chemistry course offerings (CHE-1AH, CHE-2B, and CHE-3).
- Reduce course caps in Introductory and General Chemistry lab courses from 32 to 25 students to maintain safe laboratory practices as well as give students a greater opportunity for increased contact with faculty to ensure their success in the courses. The course cap of 25 students for chemistry lab courses, which is the standard set by the American Chemical Society (ACS) and is consistent with the standards set by the National Fire and Prevention Association (NFPA).

What are your plans/goals (3-year) regarding this goal?

- Build new course curricula for CHE-3 (Fall 2022) and CHE-1AH (Fall 2023) and start offering sections of these courses.
- Hire a new full-time faculty member in Chemistry.
- Hire a new full-time laboratory technician.
- Create new laboratory space for more sections of Chemistry courses.
- Create more storage space to safely store chemicals and materials for current and new laboratories.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

- National Fire Protection Association (NFPA) Guidelines
  - https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/List-of-Codes-and-Standards

Program Review: Part 1

- American Chemical Society Guidelines for Chemistry for Two-Year College Program
    - https://www.acs.org/content/acs/en/education/policies/two-year-college.html

Reducing Class-Size Caps for General and Introductory Chemistry Courses at Norco College

The Chemistry Discipline at Norco College is seeking to lower the lab capacities (lab caps) of it General Chemistry and Introductory Chemistry courses from 32 to 25 students citing safety concerns for faculty and students. Chemistry lab classes are unique in that faculty have to be constantly vigilant and available to all students to create a safe and optimal learning environment. However, it is very difficult to be to ensure that safety and effective learning take place in lab class environments of 32 students. Thus, the Norco College Chemistry faculty have two major safety concerns with regard to the college's current lab caps: 1) the ability of instructors to oversee and manage the number of students in a lab class and 2) the amount of individual workspace provided to each student.

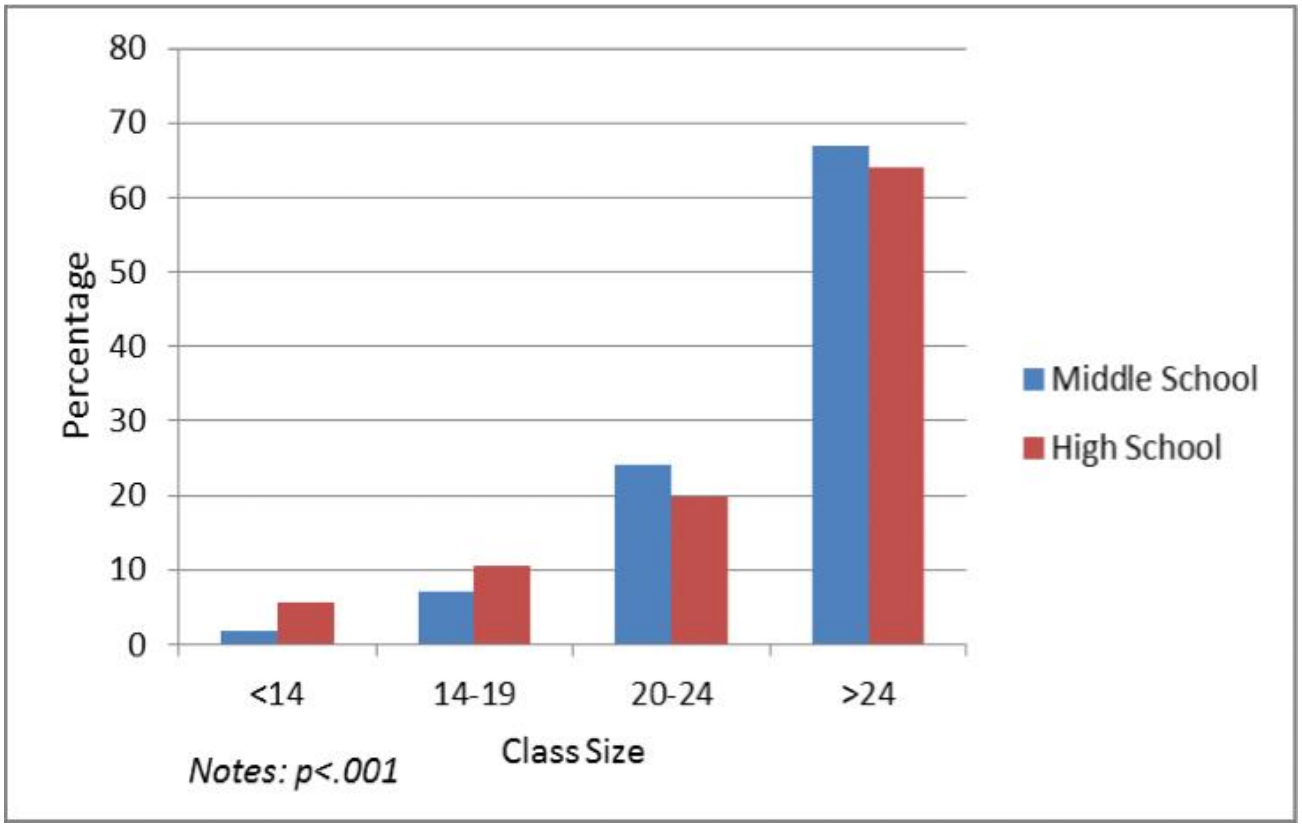
The American Chemical Society (ACS) provides guidelines for lab safety. The ACS is the largest scientific society in the world and the largest professional society for those who work in the chemistry field worldwide. Thus, the ACS is viewed as the authority for all chemistry-related things. In this regard, the "ACS Guidelines for Chemistry for Two-Year College Programs"1,2 recommends that academic laboratory classes have no more than 25 students to provide an optimal educational experience that minimizes overcrowding and maintains a safe working environment.

The National Fire Protection Association (NFPA) also provides guidelines for optimal workspace for student in lab classes. The NFPA is a leader in knowledge and resources regarding fire- and hazard-related issues and prevention. In its Life Safety Code 101-2012 Occupant Load Factor for educational science labs,3 the NFPA

recommends that each student in an educational lab environment have at least 50 square feet of net work space. (Net work space is work space that excludes lab tables and benches.) We estimate that each student in our Introductory Chemistry lab room has about 24 square feet of net work space and each student in the General Chemistry lab room has about 35 square feet of net work space, which are far below the NFPA safety guidelines.

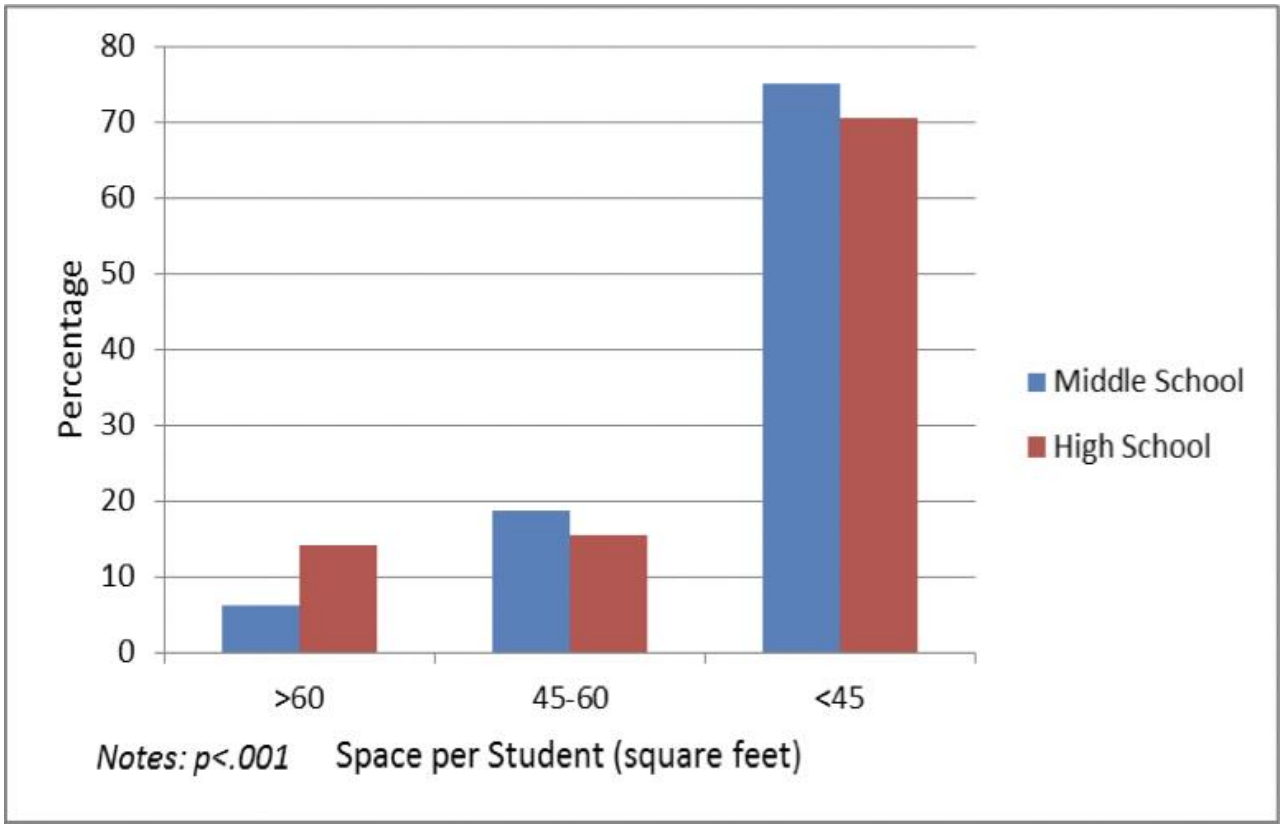
There is strong evidence than lower lab caps are correlated with safe lab environment. For example, the National Science Teachers Association published "Overcrowding in the Instructional Space" (April, 2014) with data collected from 199 secondary public schools in 2001 on overcrowding in academic lab classes. While this study used data from middle and high school lab classes, it's likely that the trends can be extended to any academic laboratory environment. This study found that accidents and incidents 1) increased by 82% (from 11% to 20%) when the high school lab class enrollments went from 14-19 students to 20-24 and 2) increased by an astonishing 320% (from 20% to 64%) when the high school lab class enrollments were above 24 high school students (Figure 1)4.

Figure 1: Accidents Increase as Class Size Increases (p<0.001)



Moreover, incidents and mishaps increased 473% (from 15% to 71%) as the classroom space per student decreased from greater than 45-60 ft2 to less than 45 ft2 of net space per student (Figure 2)4. These data strongly support the concept that lab class sizes of more 24 students and less than 45 ft2 of net space per student does not provide a safe and effective learning environment for students and faculty.

Figure 2: Accidents Increase as Space/Student Decreases (Elbow Space) (p<0.001)



Lower lab cap

The data in the following table shows how Norco College compares to several local community colleges:

Program Review: Part 1

Community College	Che-1A & Che-1B	Che-2A & Che-3
Golden West	25	25
Mt. SAC	24	24
Santiago Canyon	24	24 or 26 (depends on room)
El Camino	30	30
Cerritos	27	30
Norco	32	32
Riverside	30	30

By decreasing the class size from 32 to 25 students, accidents and liability for those accidents should decrease. We are asking that the District and Norco College support the Chemistry faculty in having a cap of 25 students in all Introductory and General Chemistry lab courses to maintain a workplace that is safe and supports effective learning.

1. American Chemical Society. *Safety in Academic Chemistry Laboratories; Vol. 2, Accident Prevention for Faculty and Administrators,* 7th ed.; American Chemical Society: Washington, DC; 2003.
2. American Chemical Society. *ACS Guidelines for Chemistry in Two-Year College Programs*, Fall 2015 ed.; American Chemical Society: Washington, D.C; 2015.
3. 7 National Fire Protection Association. NFPA 101: *Life Safety Code*, 2015. http://www.nfpa.org/codes-and- standards/document-information-pages?mode=code&code=101 (accessed June 26, 2017)

4. National Science Teachers Association, “Overcrowding in the Instructional Space”, static.nsta.org/pdfs/OvercrowdingInTheInstructionalSpace.pdf, NSTA; 2014.

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RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)
Yes

EMP GOAL 2. Implement Guided Pathways framework.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?
The District recently submitted an NSF S-STEM ($1.5 million) proposal to aid Norco College students with scholarship funds to complete their program of study at Norco College in two years and successfully transfer to a four-year university. This program will be led by Norco College Chemistry faculty.
An effort is underway to reduce course caps in Introductory and General Chemistry lab courses from 32 to 25 students to maintain safe laboratory practices as well as give students a greater opportunity for increased contact with faculty to ensure their success in the courses. The course cap of 25 students for chemistry lab courses, which is the standard set by the American Chemical Society (ACS) and is consistent with the standards set by the National Fire and Prevention Association (NFPA).

What are your plans/goals (3-year) regarding this goal?
If the grant is awarded, the anticipate start date will be Spring 2022 and will provide scholarship money to 22 Chemistry students through 2024. The grant will also establish learning communities for Chemistry students and aid these students in the Chemistry classes.
Reduce course caps in Introductory and General Chemistry lab courses from 32 to 25 students to maintain safe laboratory practices as well as give students a greater opportunity for increased contact with faculty to ensure their success in the

courses. The course cap of 25 students for chemistry lab courses, which is the standard set by the American Chemical Society (ACS) and is consistent with the standards set by the National Fire and Prevention Association (NFPA).

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

The demand for healthcare professionals, engineers, kinesiology, and scientists remains high and is expected to remain high. Chemistry is considered the central science for most STEM- and health-related fields.

Document Repository - Norco NSF S-STEM Proposal

- National Fire Protection Association (NFPA) Guidelines
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oversee and manage the number of students in a lab class and 2) the amount of individual workspace provided to each student.

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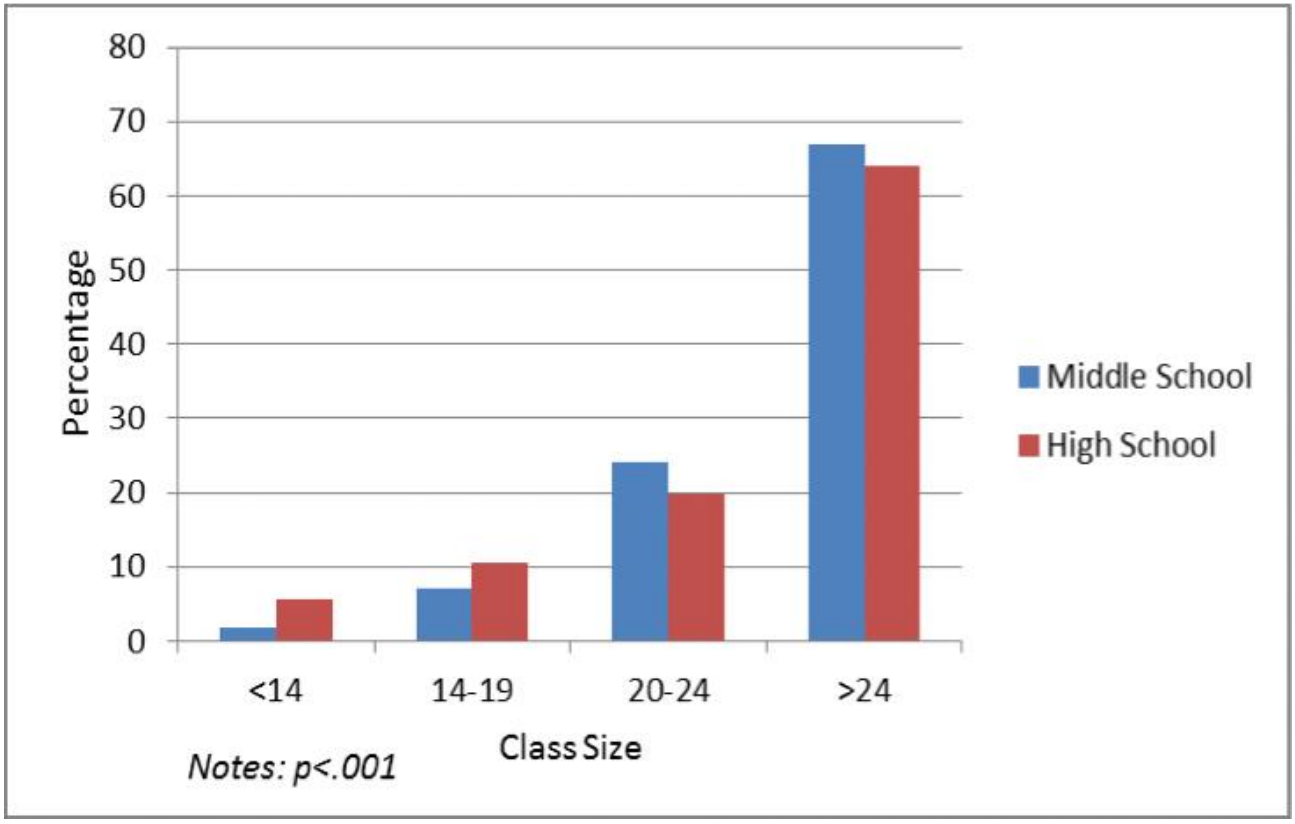

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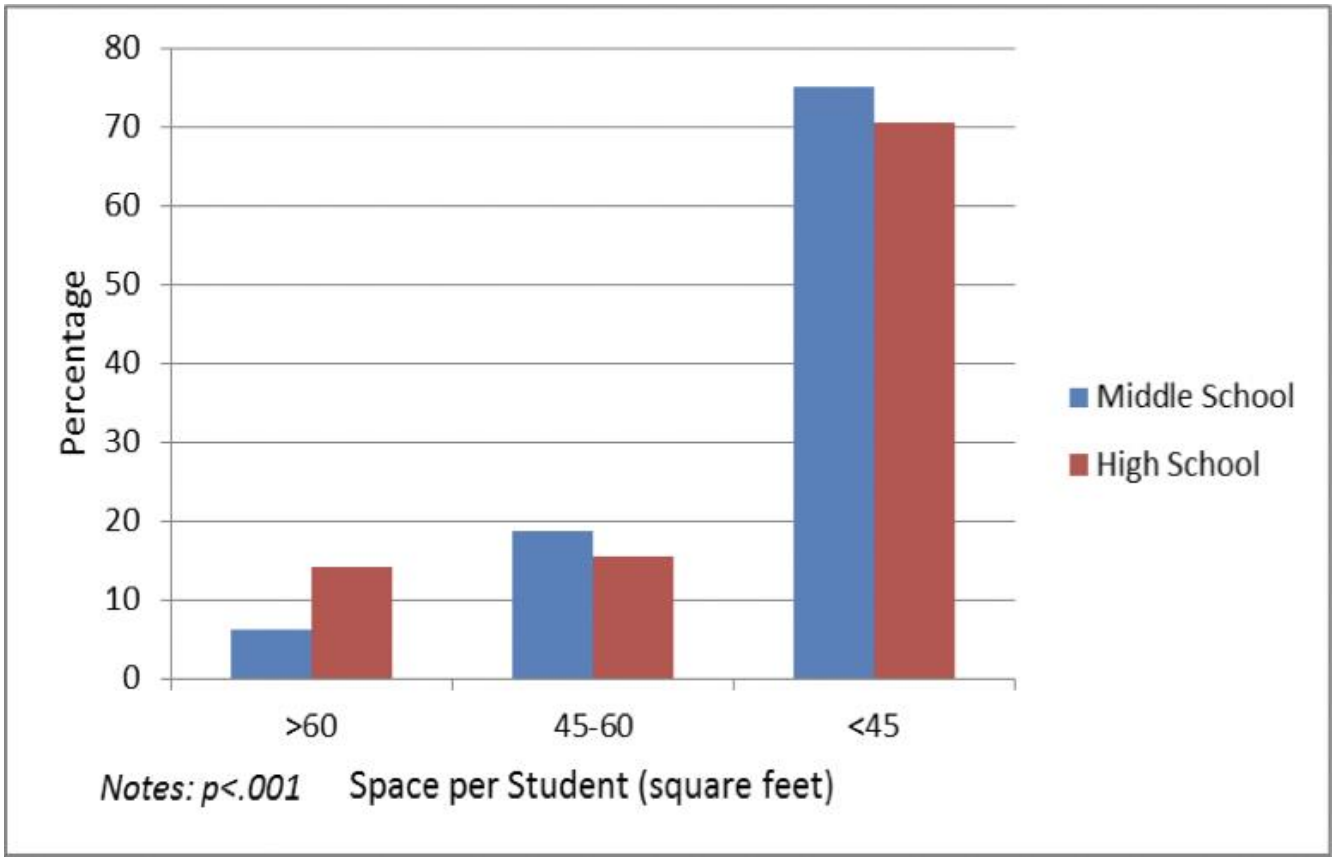

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RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)
No

EMP GOAL 3. Close all student equity gaps.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

- The District recently submitted an NSF S-STEM ($1.5 million) proposal to aid Norco College students with scholarship funds to complete their program of study at Norco College in two years and successfully transfer to a four-year university. This program will be led by Norco College Chemistry faculty. This program will specifically target low-income and/or underrepresented students into chemistry transfer pathways
- Chemistry faculty continue to attend workshops, meetings, and RCCD FLEX events that address closing equity gaps for STEM students.
- Reduce course caps in Introductory and General Chemistry lab courses from 32 to 25 students to maintain safe laboratory practices as well as give students a greater opportunity for increased contact with faculty to ensure their success in the courses. The course cap of 25 students for chemistry lab courses, which is the standard set by the American Chemical Society (ACS) and is consistent with the standards set by the National Fire and Prevention Association (NFPA).

What are your plans/goals (3-year) regarding this goal?

- If the grant is awarded, the anticipate start date will be Spring 2022 and will provide scholarship money to 22 low-income and/or underrepresented Chemistry students through 2024. The grant will also establish learning

communities for low-income and/or underrepresented Chemistry students and aid these students in the Chemistry classes.

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EVIDENCE

Do you have assessment data or other evidence that relates to this goal?
Document Repository - Norco NSF S-STEM Proposal

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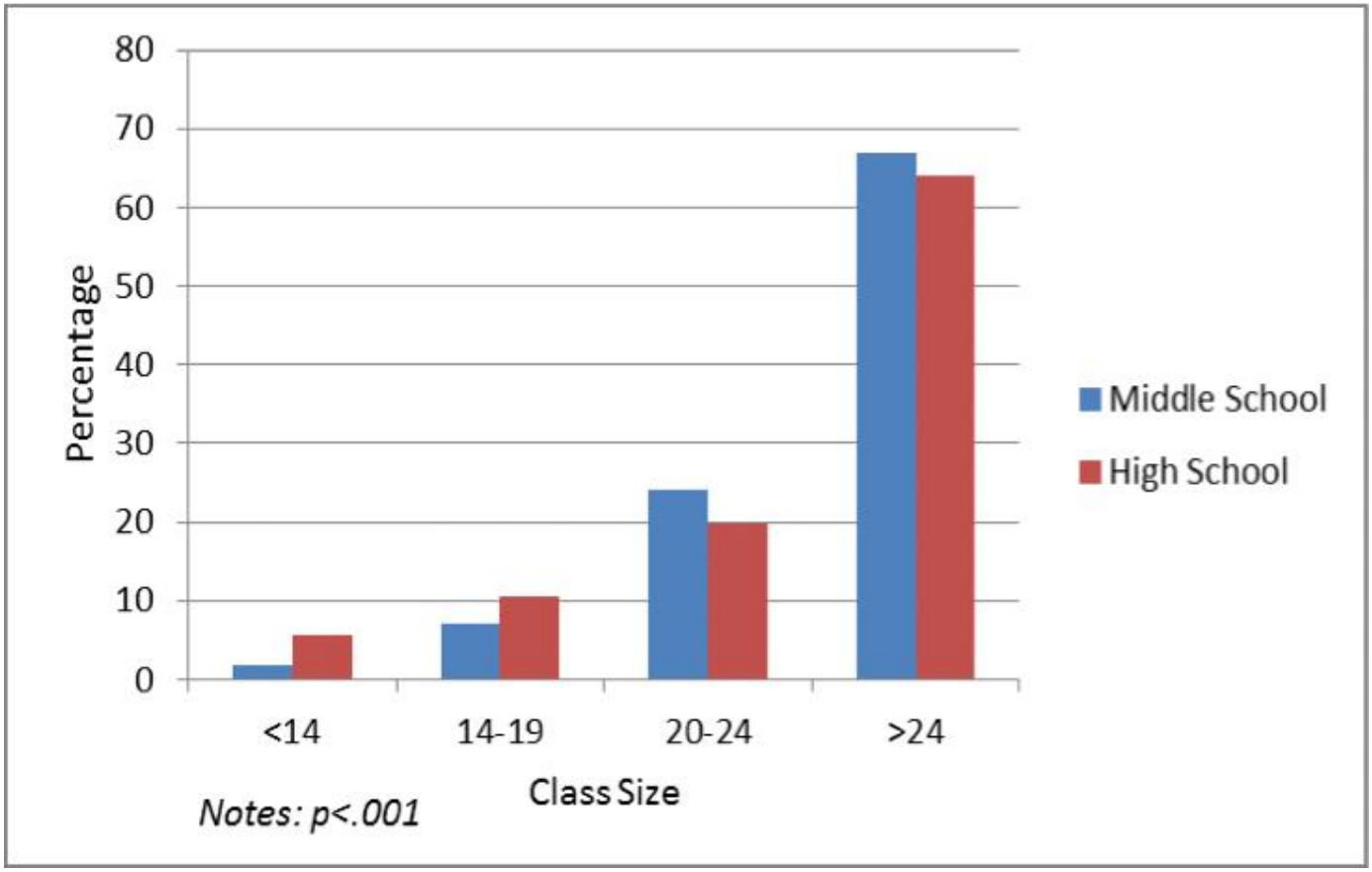

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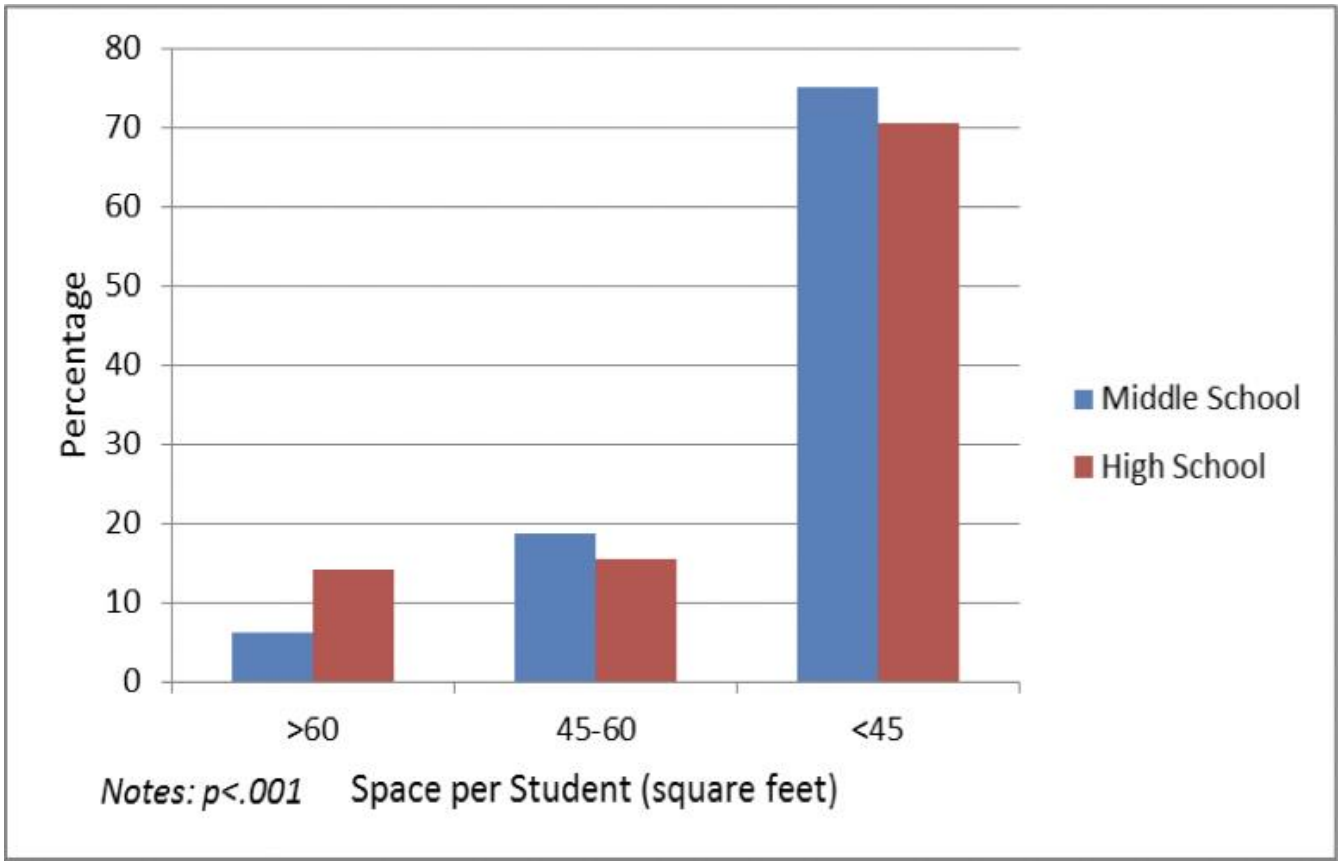
Figure 2: Accidents Increase as Space/Student Decreases (Elbow Space) (p<0.001)



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RESOURCES

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No

EMP GOAL 5. Reduce working poverty and the skills gap.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?
The Chemistry discipine at Norco College services more than 1,300 students/year as a general education requirement and to fulfil the course requirements for nearly all STEM and healthcare majors. A number of these STEM and healthcare majors lead to high paying/high skill jobs. Thus, all Chemistry courses are needed to alleviate the working poverity and skills gap Additional equipment and storage facilities for chemicals are required to accommodate growth in chemistry courses.
Moreover, safety guidelines must be updated to accommodate growth (e.g., course caps in some chemistry labs, etc.)

What are your plans/goals (3-year) regarding this goal?

- Continue to increase the number of sections of all existing Chemistry course offerings
- Develop new Chemistry course offerings at Norco College including CHE-3, CHE-1AH, and CHE-2B.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?
The demand for healthcare professionals, engineers, kinesiology, and scientists remains high and is expected to remain high. Chemistry is considered the central science for most STEM- and health-related fields.

Document Repository - EMP Goal 5 - C&E Salary Surveys 2020

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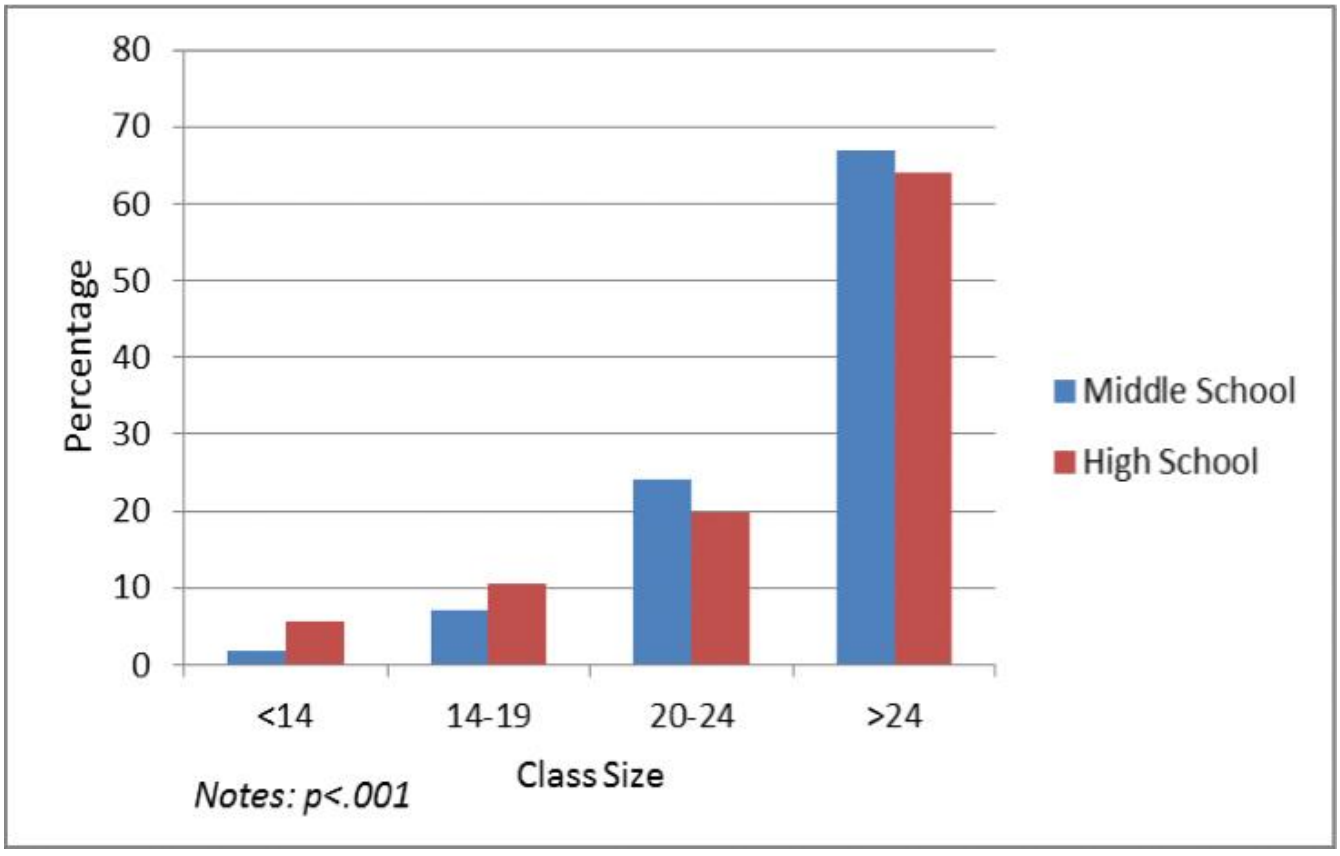
There is strong evidence than lower lab caps are correlated with safe lab environment. For example, the National Science Teachers Association published "Overcrowding in the Instructional Space" (April, 2014) with data collected from 199 secondary public schools in 2001 on overcrowding in academic lab classes. While this study used data from middle and high school lab classes, it's likely that the trends can be extended to any academic laboratory environment. This study found that accidents and incidents 1) increased by 82% (from 11% to 20%) when the high school lab class enrollments went from 14-19 students to 20-24 and 2) increased by an astonishing 320% (from 20% to 64%) when the high school lab class enrollments were above 24 high school students (Figure 1)4.

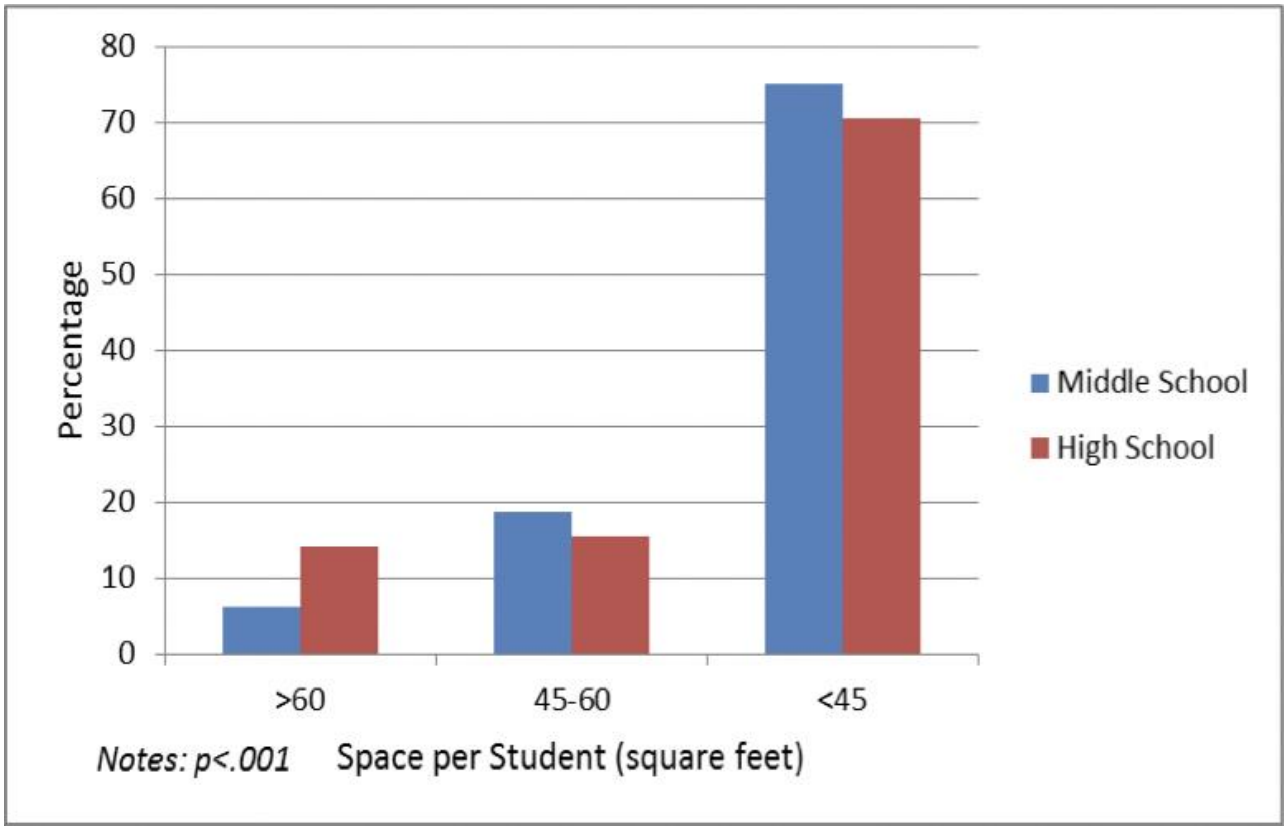
Figure 1: Accidents Increase as Class Size Increases (p<0.001)



Moreover, incidents and mishaps increased 473% (from 15% to 71%) as the classroom space per student decreased from greater than 45-60 ft2 to less than 45 ft2 of net space per student (Figure 2)4. These data strongly support the concept

that lab class sizes of more 24 students and less than 45 ft2 of net space per student does not provide a safe and effective learning environment for students and faculty.

Figure 2: Accidents Increase as Space/Student Decreases (Elbow Space) (p<0.001)



Lower lab cap

The data in the following table shows how Norco College compares to several local community colleges:

Program Review: Part 1

Community College	Che-1A & Che-1B	Che-2A & Che-3
Golden West	25	25
Mt. SAC	24	24
Santiago Canyon	24	24 or 26 (depends on room)
El Camino	30	30
Cerritos	27	30
Norco	32	32
Riverside	30	30

By decreasing the class size from 32 to 25 students, accidents and liability for those accidents should decrease. We are asking that the District and Norco College support the Chemistry faculty in having a cap of 25 students in all Introductory and General Chemistry lab courses to maintain a workplace that is safe and supports effective learning.

1. American Chemical Society. *Safety in Academic Chemistry Laboratories; Vol. 2, Accident Prevention for Faculty and Administrators,* 7th ed.; American Chemical Society: Washington, DC; 2003.
2. American Chemical Society. *ACS Guidelines for Chemistry in Two-Year College Programs*, Fall 2015 ed.; American Chemical Society: Washington, D.C; 2015.
3. 7 National Fire Protection Association. NFPA 101: *Life Safety Code*, 2015. http://www.nfpa.org/codes-and- standards/document-information-pages?mode=code&code=101 (accessed June 26, 2017)

4. National Science Teachers Association, “Overcrowding in the Instructional Space”, static.nsta.org/pdfs/OvercrowdingInTheInstructionalSpace.pdf, NSTA; 2014.

?

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)
Yes

EMP GOAL 6. Pursue, develop, & sustain collaborative partnerships.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?
The District recently submitted an NSF S-STEM ($1.5 million) proposal to aid Norco College students with scholarship funds to complete their program of study at Norco College in two years and successfully transfer to a four-year university. This program will be led by Norco College Chemistry faculty. If the grant is awarded, the anticipate start date will be Spring 2022 and will provide scholarship money to 22 Chemistry students through 2027. The grant will also establish learning communities for Chemistry students and aid these students in the Chemistry classes.
Part of this proposal involves collaborating with local high schools to identify students for these scholarships.
Another part of this proposal is to help increase success and retention rates for students to complete their program of study within two years. The final part of the proposal is to work with La Sierra and UC Riverside to guarantee transfer of these students to these institutions.

What are your plans/goals (3-year) regarding this goal?

- If the grant is awarded, the anticipate start date will be Spring 2022 and will provide scholarship money to 22 low-income and/or underrepresented Chemistry students through 2024. The grant will also establish learning communities for low-income and/or underrepresented Chemistry students and aid these students in the Chemistry classes.

- Chemistry faculty will continue to attend workshops, meetings, and RCCD FLEX events that address closing equity gaps for STEM students.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?
Document Repository - Norco NSF S-STEM Proposal

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)
No

EMP GOAL 7. Become the regional college of choice by offering a comprehensive range of programs that prepare students for the future and meet employer workforce needs.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

- The District recently submitted an NSF S-STEM ($1.5 million) proposal to aid Norco College students with scholarship funds to complete their program of study at Norco College in two years and successfully transfer to a four-year university. This program will be led by Norco College Chemistry faculty. This program will specifically target low-income and/or underrepresented students into chemistry transfer pathways. This scholarship program will attract disadvantaged students into the Chemistry Program at Norco College.

- The Chemistry discipline will continue to increase both new course offerings and sections of current courses to better serve members of the community and local areas for their educational needs.

- The Chemistry discipline continues to request additional chemistry faculty members, lab facilities and Chem Tech support staff to meet the current and anticipated increased demand for chemistry courses.

Program Review: Part 1

What are your plans/goals (3-year) regarding this goal?
We will work towards hiring an additional chemistry faculty member (to give 5 total full-time faculty) and a Chem Tech support staff. We will also work towards increasing chemistry course offerings and chemistry lab facilities to enable more students to take chemistry courses at Norco College.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?
Document Repository - Norco NSF S-STEM Proposal
The demand for healthcare professionals, engineers, kinesiology, and scientists remains high and is expected to remain high. Chemistry is considered the central science for most STEM- and health-related fields.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)
Yes

EMP GOAL 9. Expand workforce to support comprehensive college and develop/sustain excellent workplace culture.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?
We continue to offer as many courses as possible to meet the demand of students despite having only 4 full-time Chemistry faculty members and limited Lab Tech support.

What are your plans/goals (3-year) regarding this goal?
We are requesting a new full-time chemistry faculty member and a full-time Lab Tech to support existing and future class offerings. We would like to be a more comprehensive Chemistry Discipline by offering Che-1AH, Che-3, and Che-2B, as these courses are not currently taught at Norco College due to lack of personnel.

Program Review: Part 1

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

The Chemistry discipline at Norco College has a need for a new full-time faculty member and an additional full-time Lab Tech to ensure that it is able to meet the course demands of students. This need is evident when considering the percentage of chemistry FTES that are taught by full-time faculty vs. part-time faculty. For example, in the 2019-2020 academic year, the Chemistry discipline offered 18.6 FTEs based with the following breakdown by term:

Term	Chemistry FTE
Summer 2019	1.2
Fall 2019	7.8
Winter 2020	1.2
Spring 2020	8.4
total for 2019-2020 academic year	***18.6***

If these numbers hold for the 2021-2022 academic year and if each of the four current full-time faculty member teaches the targeted 1.0 FTE in both the Fall and Spring semesters, then only 43.0% (8.0/18.6) of the FTEs in the 2021-2022 academic year will be taught by full-time faculty members. However, this analysis does not factor in the release time that Chemistry faculty members receive for their Norco College institutional service and does not take account any growth in the Chemistry discipline's course offerings beyond the 2020-2021 academic year. Thus, the actual percentage of FTEs that will be taught by full-time faculty at Norco College will likely be lower than 43.0% during 2020-2021 and beyond. Additionally, this analysis assumes that the Chemistry discipline will be granted an automatic replacement position for the Chemistry faculty member who is going to retire in June 2021. [If this

Chemistry position is not replaced, then only 32.2% (6.0/18.6) of the FTEs in the 2021-2022 academic year will be taught by full-time faculty members.]

The low percentage of Chemistry FTEs that will taught by full-time faculty members poses challenges for the Chemistry discipline. For example, it requires that the discipline hire several part-time faculty members to teach the majority of its classes. However, finding qualified part-time faculty members in Chemistry is difficult, which has limited the number of sections that the discipline was able to offer in past terms. Additionally, a new full-time Chemistry faculty member is needed to grow Norco College's Chemistry program. While neither CHE-2B or CHE-3 are currently offered at the College, there is a need for both of these classes. CHE-2B is needed for many students in the health-related fields and is required for the ADT for Kinesiology, and CHE-3 is an introductory chemistry course for science majors that is designed to serve as the prerequisite for the first semester of General Chemistry (CHE-1A). While the college currently uses CHE-2A as its CHE-1A prerequisite, this course is not demanding enough to adequately prepare students for the rigors of General Chemistry (CHE-1A/1B). Thus, the College is not serving the needs of its students by not offering CHE-2B and CHE-3. If the current full-time faculty members develop and subsequently teach these courses, then they would not be available to teach upper-level chemistry courses. This would create a void in the discipline's course offerings because it is exceedingly difficult to qualified adjunct faculty to teach upper-level chemistry courses. Thus, a new Chemistry faculty member is needed to both ensure that Chemistry course offerings are able to meet the needs of students and to expand the discipline's course offerings.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)
Yes

Program Review: Part 1

EMP GOAL 10. Build a comprehensive and inspiring campus integrated into the region that serves as a destination for education, commerce, life, and the arts.

GOALS AND ACTIVITIES

What are you doing now in support of this goal?

We are unable to offer even more chemistry lab courses due to lack of funds to support additional lab space. Chemistry lab courses are the bottleneck to offering more more chemistry courses at Norco College.

What are your plans/goals (3-year) regarding this goal?

By adding additional chemistry laboratory facilities, and modifying the lab space that we currently have, we will be able to offer more chemistry courses at Norco College.

Chemistry courses support the growth of other science disciplines, therefore more chemistry courses are needed to support their growth as well as ours.

Increasing chemistry courses will enable these students to finish all of their courses at Norco College.

EVIDENCE

Do you have assessment data or other evidence that relates to this goal?

As Norco College continues to grow, additional chemistry courses will be needed to meet the demand of students.

RESOURCES

Is there a resource request associated with this EMP Goal? (If yes, please complete a Resource Request, which you can access from the main menu to the left)

Yes

Program Review Part 2

2021 - 2024

Curriculum

Are all your courses current (within four years)?
Yes

What percentage of your courses are out of date?
0%

If you have courses that are not current, are they in the curriculum process?
N/A

For out of date courses that are not already in progress of updating, what is your plan?
N/A

Do you have proposals in progress for all the DE courses you intend to file?
No

Do you require help to get your courses up to date?
No

Program Review Reflections

What would make program review meaningful and relevant for your unit?

1. under resource requests, place the question for what is needed first, then the question for what the discipline currently has second
2. descriptions of all funding sources are needed
3. under resource requests, under "The evidence to support this request can be found in:" another option is needed to add additional information from the discipline to justify the need for the item(s)

What questions do we need to ask to understand your program plans, goals, needs?
N/A

What types of data do you need to support your program plans, goals, needs?
transfer data to 4 year colleges/universities (percent of students in a major and in a discipline)

If there are any supporting documents you would like to attach, please attach them here.

Resource Requests

2021 - 2024

What resources do we already have?
our current acid storage cabinets are full and some need to be replaced due to corrosion/up to code

What resources do you need?
acid storage cabinet

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
2,000

Resource Type
ITEM: Equipment, Technology, Services, Software, Furniture

Potential Funding Source(s)
Lottery Instructional Supplies,General Fund

The evidence to support this request can be found in:
Program Review: Part 1,Data Review

This request for my area is Priority #:
2

2021 - 2024

What resources do we already have?
currently have 5

What resources do you need?
Gilson Micropipettes for Organic Chemistry Lab (need six more)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
2,100

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Instructional Equipment Allocation,Lottery Instructional Supplies

The evidence to support this request can be found in:
Program Review: Part 1,Data Review

This request for my area is Priority #:
5

Resource Requests

2021 - 2024

What resources do we already have?
none

What resources do you need?
Polarimeter

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
11,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Program Review: Part 1,Data Review

This request for my area is Priority #:
14

2021 - 2024

What resources do we already have?
one Infrared Spectrometer (IR) instrument

What resources do you need?
an additional IR instrument

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
25,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Instructional Equipment Allocation,Lottery Instructional Supplies

The evidence to support this request can be found in:
Program Review: Part 1,Data Review

This request for my area is Priority #:
15

Resource Requests

2021 - 2024

What resources do we already have?
ACS Exam For Organic Chem (3 older versions for 12A and 2 older versions of 12B)

What resources do you need?
ACS Exam for Organic Chem (need current version) and for General Chemistry 1A and 1B

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
300

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Program Review: Part 1,Assessment Review,Data Review

This request for my area is Priority #:
18

2021 - 2024

What resources do we already have?
none

What resources do you need?
heating mantles and power supply (20 are needed at $650 for each)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
13,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Program Review: Part 1,Data Review

This request for my area is Priority #:
4

Resource Requests

2021 - 2024

What resources do we already have?
none

What resources do you need?
KBr pellet press

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
5,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Program Review: Part 1,Data Review

This request for my area is Priority #:
13

2021 - 2024

What resources do we already have?
none

What resources do you need?
Lab Jacks (20 at $400 each)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
8,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Instructional Equipment Allocation,Lottery Instructional Supplies

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
7

Resource Requests

2021 - 2024

What resources do we already have?
library currently has subscription but the discipline is unsure if it will continue the subscription

What resources do you need?
renew library subscription to Journal of Chemical Education

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 7,EMP Goal 9

$ Amount Requested
800

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
17

2021 - 2024

What resources do we already have?
Current reverse osmosis water system for deionized water to run all chemistry labs is operable but is no longer being supported by the vendor.

What resources do you need?
A replacement reverse osmosis water system for deionized water to run all chemistry labs is required or we will be unable to run any chemistry labs.

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
40,000

Resource Type
ITEM: Equipment, Technology, Services, Software, Furniture

Potential Funding Source(s)
Lottery Instructional Supplies

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
1

Resource Requests

2021 - 2024

What resources do we already have?
We currently have 2 Gas Chromatographs (GC) but supplies are needed to maintain and run experiments

What resources do you need?
Supplies to run instrumentation GC (gases, septa, syringes, aluminum tubing, fittings, ferrules, regulators (two stage and inline), columns, traps for gas lines (moisture and organics), vials for autosampler), demurrage charges on gases)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 10,EMP Goal 9

$ Amount Requested
6,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
3

2021 - 2024

What resources do we already have?
Recently purchased Nuclear Magnetic Resonance (NMR) instrument with no supplies

What resources do you need?
Supplies (chemicals and equipment) for NMR instrument

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
1,500

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
23

Resource Requests

2021 - 2024

What resources do we already have?
Journal of Visualized Experiments (JoVE) - current subscription will be expiring and are unsure of future support

What resources do you need?
Renew JoVE subscription

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 3,EMP Goal 2,EMP Goal 7,EMP Goal 6,EMP Goal 9,EMP Goal 10

$ Amount Requested
2,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies

The evidence to support this request can be found in:
Data Review

This request for my area is Priority #:
22

2021 - 2024

What resources do we already have?
Chemistry lab tech (1 full-time and 1 part-time)

What resources do you need?
Replacement for full-time Chemistry Lab Tech

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 9

$ Amount Requested
100,000

Resource Type
STAFF: Classified Professional, Confidential, Manager

Potential Funding Source(s)
Other/None,General Fund

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
26

Resource Requests

2021 - 2024

What resources do we already have?
4 Full-time faculty

What resources do you need?
additional faculty member needed to address growth in chemistry courses and to cover our current course offerings ($150,000 per year)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
150,000

Resource Type
FACULTY: New Full time Faculty (Associate faculty requested through Dept. Chair and Dean)

Potential Funding Source(s)
Other/None,General Fund

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
25

2021 - 2024

What resources do we already have?
one projection system and screen in HUM 204

What resources do you need?
additional projection system/SMART classroom and screen in HUM 204 is needed for all students to be able to see course content during instruction (about half the students in class can see the course content projected from the existing one projector).

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
5,000

Resource Type
ITEM: Equipment, Technology, Services, Software, Furniture

Potential Funding Source(s)
General Fund,Other/None

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
6

Resource Requests

2021 - 2024

What resources do we already have?
2 lab rooms to run all 20 sections of chemistry courses

What resources do you need?
additional lab space (renovate existing space)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 9,EMP Goal 10

$ Amount Requested
500,000

Resource Type
BUDGET: Facilities Building, Remodel

Potential Funding Source(s)
General Fund,Other/None

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
24

2021 - 2024

What resources do we already have?
none

What resources do you need?
Vigreaux Columns (25 at $150 each)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 2,EMP Goal 3,EMP Goal 5,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
3,750

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,General Fund

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
9

Resource Requests

2021 - 2024

What resources do we already have?
20 Thermistors

What resources do you need?
14 more thermistors ($50 each)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 2,EMP Goal 3,EMP Goal 5,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
700

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
11

2021 - 2024

What resources do we already have?
17 gas pressure probes

What resources do you need?
17 more gas pressure probes

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 2,EMP Goal 3,EMP Goal 5,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
1,700

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,Instructional Equipment Allocation

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
10

Resource Requests

2021 - 2024

What resources do we already have?
28 hot plate/stirrers

What resources do you need?
12 hot plate/stirrers ($550 each)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 2,EMP Goal 3,EMP Goal 5,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
6,600

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,General Fund

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
8

2021 - 2024

What resources do we already have?
LabQuests (30)

What resources do you need?
6 more Lab Quests ($375)

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 2,EMP Goal 3,EMP Goal 5,EMP Goal 7,EMP Goal 6,EMP Goal 9,EMP Goal 10

$ Amount Requested
2,250

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
16

Resource Requests

2021 - 2024

What resources do we already have?
bench space for instrumentation

What resources do you need?
add bench space for placement of new instrumentation (NMR, Gas Chromatographs, IR, etc.) for General and Organic Chemistry Labs and storage cabinets for storing instrument equipment and supplies

Request related to EMP goal or Assessment?
EMP Goal 1,EMP Goal 2,EMP Goal 3,EMP Goal 5,EMP Goal 6,EMP Goal 7,EMP Goal 9,EMP Goal 10

$ Amount Requested
15,000

Resource Type
BUDGET: Facilities Building, Remodel

Potential Funding Source(s)
Lottery Instructional Supplies,General Fund

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
12

2021 - 2024

What resources do we already have?
ChemDraw (older version not currently compatible with current software)

What resources do you need?
3 years - Upgrade ChemDraw to be compatible with current computer software ($2500 per faculty for software/upgrades/maintenance fee for 4 faculty)

Request related to EMP goal or Assessment?
EMP Goal 6,EMP Goal 9

$ Amount Requested
7,500

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
Lottery Instructional Supplies,General Fund

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
20

Resource Requests

2021 - 2024

What resources do we already have?
older Mac computers for 2 faculty

What resources do you need?
2 new 24" Mac computers ($1500 each)

Request related to EMP goal or Assessment?
EMP Goal 9,EMP Goal 6

$ Amount Requested
3,000

Resource Type
ITEM: Instructional supplies

Potential Funding Source(s)
General Fund,Lottery Instructional Supplies

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
19

2021 - 2024

What resources do we already have?
Faculty Professional Development funding

What resources do you need?
Continued support for funding faculty to attend conferences and meetings ($2000 each for 3 faculty members per year for three years and $2000 for 4 faculty for 2 years)

Request related to EMP goal or Assessment?
EMP Goal 5,EMP Goal 2,EMP Goal 3,EMP Goal 6,EMP Goal 7,EMP Goal 9

$ Amount Requested
22,000

Resource Type
BUDGET: Request Ongoing Funding (Professional Development, Department or Program Support, Outreach, Marketing)

Potential Funding Source(s)
Equity,General Fund

The evidence to support this request can be found in:
Data Review,Program Review: Part 1

This request for my area is Priority #:
21

Submission

2021 - 2024

All parts of my Program Review have been completed and it is ready for review
Yes

List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

If there are more than 10 individuals designated as senior project personnel on the proposal, or if there are print preview issues, each completed template must be saved as a .txt file [select the Text (Tab Delimited) option] rather than as an .xlsx or .xls file. This format will still enable preservation of searchable text and avoid delays in processing and review of the proposal. Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

COA template Table 1:
List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

COA template Table 2:
List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

COA template Table 3:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **The individual's Ph.D. advisors; and**
- **All of the individual's Ph.D. thesis advisees.**

COA template Table 4:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**
- **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

COA template Table 5:
List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.
- **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**
- **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.
2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional)
Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and
To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.
You may fill-down (crtl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting.
For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.
"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

Table 1: List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Virgil J. Lee	Norco College	Present

Table 2: List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

to disambiguate common names

2	Name:	Organizational Affiliation	Optional (email, Department)	Last Active

Table 3: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and
T: All of the individual's Ph.D. thesis advisees.

to disambiguate common names

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
	Professor James Collman	Stanford University	unknown (retired)

Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**

C: **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

to disambiguate common names

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active

Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief

B: **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**

E: **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

to disambiguate common names

5	Name:	Organizational Affiliation	Journal/Collection	Last Active

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List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional)
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1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Lugo, Christopher A.	Norco College	Present

Table 2: List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

to disambiguate common names

2	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
	N/A			

Table 3: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and
T: All of the individual's Ph.D. thesis advisees.

to disambiguate common names

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
	Vincent LaVallo	University of California, Riverside	

Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**

C: **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

to disambiguate common names

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
	J. F. Kleinsasser	University of California, Riverside		2018
	S. E. Lee	University of California, Riverside		2018
	V. Tej	University of California, Riverside		2018
	S. G. McArthur	University of California, Riverside		2018
	V. Lavallo	University of California, Riverside		2018

Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief

B: **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**

E: **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

to disambiguate common names

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
	N/A			

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE	☐ Special Exception to Deadline Date Policy	FOR NSF USE ONLY
NSF 21-550 04/07/21		NSF PROPOSAL NUMBER **2130404**
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)		
DUE - S-STEM Track 2: Design & Dev-(Single Institution)		

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
04/07/2021	1	11040000 DUE	1536	110253833	04/07/2021 4:06pm

EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)	SHOW PREVIOUS AWARD NO. IF THIS IS ☐ A RENEWAL ☐ AN ACCOMPLISHMENT-BASED RENEWAL	IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☐ IF YES, LIST ACRONYM(S)
330831357		

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE	ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE
Riverside Community College District/Norco Campus	Riverside Community College District/Norco Campus 2001 Third Street Norco,CA.928602600
AWARDEE ORGANIZATION CODE (IF KNOWN) 7203576475	
NAME OF PRIMARY PLACE OF PERF	ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE
Riverside Community College District/Norco Campus	Riverside Community College District/Norco Campus CA ,928602660 ,US.

IS AWARDEE ORGANIZATION (Check All That Apply) ☐ SMALL BUSINESS ☐ MINORITY BUSINESS ☐ FOR-PROFIT ORGANIZATION ☐ WOMAN-OWNED BUSINESS ☐ IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE

TITLE OF PROPOSED PROJECT: Accelerating Chemistry Engagement & Success (ACES)

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ 1,499,723	72 months	07/01/22	

THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

- ☐ BEGINNING INVESTIGATOR
- ☐ DISCLOSURE OF LOBBYING ACTIVITIES
- ☐ PROPRIETARY & PRIVILEGED INFORMATION
- ☐ HISTORIC PLACES
- ☐ VERTEBRATE ANIMALS IACUC App. Date _____
  PHS Animal Welfare Assurance Number _____
- ☒ TYPE OF PROPOSAL: Research
- ☒ HUMAN SUBJECTS Human Subjects Assurance Number _____
  Exemption Subsection 101(2)(b)1 or IRB App. Date Pending
- ☐ FUNDING OF INT'L BRANCH CAMPUS OF U.S IHE ☐ FUNDING OF FOREIGN ORG
- ☐ INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED
- ☒ COLLABORATIVE STATUS: Not a collaborative proposal

PI/PD DEPARTMENT	PI/PD POSTAL ADDRESS
Science and Kinesiology	2001 Third Street Norco,CA 928602800 United States
PI/PD FAX NUMBER	

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address
PI/PD NAME Virgil Lee	PhD	1992	951-738-7770	virgil.lee@norcocollege.edu
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

CERTIFICATION PAGE

Certification for Authorized Organizational Representative (or Equivalent)

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), flood hazard insurance (when applicable), responsible conduct of research and organizational support as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

Certification Regarding Conflict of Interest

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

Certification Regarding Flood Hazard Insurance

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

(1) community in which that area is located participates in the national flood insurance program; and
(2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

(1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
(2) for other NSF grants when more than $25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

Certification Regarding Responsible Conduct of Research (RCR)

(This certification is not applicable to proposals for conferences, symposia, and workshops.)

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B. , the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

Certification Regarding Organizational Support

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

Certification Regarding Dual Use Research of Concern

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME **Monica Green**	**Electronic Signature**	**Apr 7 2021 4:05PM**

TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
951-372-7015	**monica.green@norcocollege.edu**	

NATIONAL SCIENCE FOUNDATION
Division of Undergraduate Education

NSF FORM 1295: PROJECT DATA FORM

The instructions and codes to be used in completing this form are provided in Appendix II.

1. **Program-track** to which the Proposal is submitted: **S-STEM Track 2: Design & Dev-(Single Institution)**
2. Name of **Principal Investigator/Project Director** (as shown on the Cover Sheet):
   Lee, Virgil
3. Name of submitting **Institution** (as shown on Cover Sheet):
   Riverside Community College District/Norco Campus
4. **Other Institutions** involved in the project's operation:

Project Data:

A. Major Discipline Code: **12**
B. Academic Focus Level of Project: **LO**
C. Highest Degree Code: **A**
D. Category Code: ___
E. Business/Industry Participation Code: **NA**
F. Audience Code: **M**_ _ _ _ _ _ _
G. Institution Code: **PUBL**
H. Strategic Area Code: _____
I. Project Features: **1 2 4 5 8**

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

J. Undergraduate Students: **72**
K. Pre-College (PreK-12) Students: **0**
L. College Faculty: **5**
M. Pre-College (PreK-12) Teachers: **0**
N. Graduate Students: **0**
O. Postdoctoral Fellows: **0**

NSF Form 1295 (10/98)

PROJECT SUMMARY

Overview:

Norco College's Accelerating Chemistry Engagement & Success (ACES) six-year project will provide targeted recruitment of academically talented, but low-income and/or underrepresented students into chemistry transfer pathways. Norco College will provide unique, high impact, and comprehensive interventions to increase low-income and underrepresented students' retention rates and academic performance in chemistry. This project will also dramatically reduce time for these students to transfer into baccalaureate programs in chemistry. ACES is built upon thorough institutional assessment and leverages many current evidence-based initiatives at Norco College. These include the Completion Initiative, Guided Pathways, the Promise Program, and STEM Pathways.

ACES will recruit 75 academically talented, low-income students with unmet financial need, from diverse backgrounds into a chemistry pathway where they will be able to earn an associate's degree with transfer, or transfer to a baccalaureate institution. ACES will provide these students with scholarships and evidence-based curricular and co-curricular student supports, resulting in successful completion of coursework, retention, and transfer within two years. ACES will implement and investigate the impacts of these supports on building science identity and efficacy beliefs through mentorship, career-based experiential learning, and additional innovative practices, with the end goal of markedly reducing time to graduation and transfer into four-year science programs. With ACES funding, Norco College expects to meet the following objectives:

1. Develop underrepresented minority and low-income students' feelings of belongingness in STEM.
2. Enable ACES scholars to complete the chemistry pathway and transfer to a baccalaureate program in two years.
3. Foster underrepresented minority and low-income students' STEM identity.
4. Contribute to the body of knowledge regarding evidence-based practices that improve the recruitment, retention, and success of academically talented, low-income STEM students.

Intellectual Merit:

The knowledge generating component of our project will focus carefully on understanding how various aspects of ACES scholars' experiences help to foster transfer mindset and builds their STEM efficacy. This research will contribute significantly to the growing body of literature about promising practices in the recruitment, retention, success, and completion, as well as science identity formation among underrepresented student populations and the effect on academic performance and persistence in STEM.

Broader Impacts:

Riverside County, where Norco College is located, has among the lowest educational attainment rates with less than 25% of residents holding an associate degree or higher. Research on social economic mobility states that over their lifetime, students who graduate with just an associate's degree will earn less than half that of those attaining a bachelor's degree. There has been much research and debate on the exponential increase in college debt and its impact on low-income students seeking a bachelor's degree, as well as on those who continue to struggle with debt long after graduation. ACES will study the impact of providing low-income and underrepresented minority students with financial and comprehensive academic and personal supports, in conjunction with social integration at both the community college and university levels, providing critical information to state and national discussions regarding ways to decrease college debt while increasing STEM bachelor's degree attainment for low- income and traditionally underrepresented minorities.

TABLE OF CONTENTS

For font size and page formatting specifications, see PAPPG section II.B.2.

	Total No. of Pages	Page No.* (Optional)*
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	1	
Table of Contents	1	
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) **(Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**	15	
References Cited	2	
Biographical Sketches (Not to exceed 2 pages each)	4	
Budget (Plus up to 3 pages of budget justification)	9	
Current and Pending Support	30	
Facilities, Equipment and Other Resources	3	
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	7	
Appendix (List below.) **(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**		
Appendix Items:		

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

PROJECT DESCRIPTION

a. Results from Prior NSF Support

Norco College (NC) has not previously received S-STEM or STEP funding.

b. Activities and Infrastructure on Which the Current Project Builds

The NC Accelerating Chemistry Engagement & Success (ACES) Program builds upon institutional initiatives and is grounded in data-based needs assessments, as well as evidence-based literature on best practices to support STEM achievement for underrepresented and low-income students. The following four institutional initiatives serve to increase student success, decrease student time to completion, and reduce the cost of education: The Completion Initiative, Guided Pathways, the Norco College Promise Program, and STEM Pathways. Norco College developed these programs in response to success, persistence, retention, and completion data that indicated a very small percentage of students were actually completing their educational goals in four years. Students traditionally underrepresented in higher education, including low- income, African-American (particularly African-American males), Latinx, part-time students, and older students were the lowest performing across all metrics.

The Completion Initiative. Based on research from the 2015 Aspen Prize for Community College Excellence, the Game Changers (produced by Complete College America), Completion by Design's "Loss and Momentum Framework," the work done by the Research and Planning Group for California Community Colleges (which focuses on factors that contribute to student achievement), as well as its own completion data, Norco College designed a holistic Completion Initiative comprised of five interconnected components, each of which addressed institutional barriers to completion. The five components included: (1) establishing "Schools" on campus; (2) creating educational Pathways; (3) increasing faculty participation in mentorship and advising; (4) linking college to career; and (5) using intentional methods of supporting student success and completion.

Guided Pathways. In 2017, NC was chosen as one of 20 California community colleges to participate in the California Guided Pathways project. Guided Pathways is an evidence-based project that creates a highly structured approach to student success and provides all students with a set of clear course-taking patterns to promote better enrollment decisions and prepare students for future success. Guided Pathways consists of four essential principles: (1) creating clear course pathways linked to majors and careers; (2) designing intake processes that ask students about their interests and goals and help them choose a program of study; (3) supporting student progress along their path with advising and academic services and ensuring learning by creating clear outcomes and measures for programs of study; and (4) establishing regular procedures to assess student achievement. NC's Guided Pathways model is unique due to its integrated support system. All pathways have dedicated counselors that advise students on courses, majors, and relevant careers. Each cluster also has a dedicated educational advisor to make sure students are going to individualized tutoring and career counseling, as needed. Faculty advisors provide discipline-specific advising, and peer mentors provide critical social-emotional support and academic guidance.

The Norco College Promise Program. The Norco College Promise Program is designed to help first-time college students complete their educational goal(s) in a timely manner. Students who commit to the Promise Program at Norco College receive financial support during their first year to reduce college costs and increase their success and retention. To be eligible for the Promise Program, students must be a first-time college student, must enroll in at least 12 units (full-time) in Fall and Spring semesters, maintain a 2.0 GPA, and either be a California resident or California College Promise Grant-eligible. There are no income requirements to join this program. The Promise Program pays for student enrollment costs as well as service fees, health fees, and transportation fees. NC's ACES will leverage the Promise Program for recruitment and outreach purposes as well as additional financial support for students.

STEM Pathways. STEM Pathways at NC includes two programs designed for students pursuing degrees in Engineering. The first program, *STEM Engineering Pathways Program* at NC, supports students pursuing majors and careers in Engineering. Students accepted into the STEM Engineering

Pathways program will meet with a counselor twice per year who: (1) provides academic, career and transfer guidance; (2) works with students to develop an educational plan that encourages completion of an associates of science degree and transfer to a four-year university in any field of engineering; (3) offers assistance with the transfer application process and transition from NC to the four-year universities. Students in the STEM Engineering Pathways program also receive support from the STEM Engineering Pathways Student Success Coach who monitors student academic progress and develops an individual access plan to help students overcome any obstacles affecting their academic progress. This program also provides internship, research, scholarship and field trip opportunities for students. The second program, *UC Riverside Bourns College of Engineering Transfer Pathway* provides guaranteed transfer for NC students who meet the University of California, Riverside's (UCR) minimum requirements for acceptance. The pathway between NC and the UCR's Bourns College of Engineering was formalized through establishing a Transfer Admission Guarantee for the following majors: bioengineering, chemical engineering, computer engineering, electrical engineering, environmental engineering, materials science and engineering, and mechanical engineering.

Evidence-Based Practices Adapted for ACES

Research suggests that persistence in college is related to a student's ability to build academic and social connections within their institution[1,2,3]. If a student fails to develop these connections, it can result in feelings of isolation, loneliness, and low social status, which harms students' subjective well-being, academic achievement, and even immune function and health[4]. In order to achieve the feeling of belongingness, students need to engage in successful interactions with peers and faculty to gain access to relevant college information, study sessions, group activities, group projects, and classroom presentations. Establishing social relationships helps students feel comfortable in college and provides them with access to information that can ease their path as they transition from high school and pursue a degree. Students, especially those from low-income, disadvantaged, at-risk backgrounds, are highly likely to benefit from structured, frequent and mandated guidance coupled with close progress monitoring[5]. As such, NC's ACES will implement a learning community/cohort model, with numerous support services, including faculty and peer mentorship as well as curricular and co-curricular activities, to build NC's ACES learning community. By providing ACES scholars with wrap-around, integrated support services that target both academic and non-academic barriers to success, NC will ensure ACES scholars develop a sense of belonging and achieve desired academic outcomes.

Summer bridge program has demonstrated success in strengthening academic and college readiness by exposing students to college-level coursework, which improves early academic performance[6]. This is critical because research shows that the majority of academic gains occur during the first two years of college [7,8]. Academic outcomes from summer bridge programs include higher passing rates in college courses, increased credits earned, greater likelihood of attempting higher-level math and reading courses in the future, and higher retention rates [9,10,11]. Summer bridge programs are especially beneficial for students from racial and ethnic groups underrepresented in higher education, first-generation students, and low-income students [12,13,14,15]. Other positive outcomes, including increases in academic self-efficacy, greater confidence about college expectations, and a higher sense of belonging [16,17] have been found in students who attend summer bridge programs. ACES scholars will begin their journey at NC in a summer bridge program consisting of an Introduction to Chemistry workshop and an Introduction to College course.

Lack of support and engagement at transfer institutions is also a major issue for underrepresented, low-income, and first-generation students. Traditionally, most four-year institutions provide far less attention and support to transfer students than to students that started at the university as freshmen. In their study, Roberts and McNeese (2010) found substantial disparities in student involvement and engagement simply based on whether a student began their education at that university or transferred from a community college [18]. Through NC's existing partnerships with La Sierra University and the University of California, Riverside, NC's ACES scholars will have several required and optional opportunities for pre- and post-transfer support programming at both institutions.

Recent research also shows that creating and sustaining underrepresented students' science identity is critically important to their success. Several studies have demonstrated that: (1) African-American science majors and scientists must find ways to manage the alignment of their cultural identity with their identity as a scientist- in fact, their ability to do so is a strong predictor of engagement and their experience of microaggressions [19]; (2) research career intentions are directly and positively associated with self-efficacy and outcome expectancies among diverse STEM undergraduates [20]; (3) when Latinx high school students are engaged in meaningful laboratory investigations and inquiry activities, and when culturally responsive instruction is used, they are more likely to develop a science-literate identity [21]; (4) gender, race/ethnicity, and competence beliefs developed in the first year of college significantly predict science identity development trajectory and later science participation, with those having the highest initial beliefs significantly more likely to be in science careers after college graduation.[22]

The aforementioned studies show that educational institutions and programs are responsible for creating environments in which diverse students can fully participate in the community of science. The presence of effective mentorship within educational and co-curricular support systems is one of the most important factors in the development of science identity that will be adapted for ACES. Faculty and peer mentors are important agents of socialization through which emerging ACES scientists will be introduced and oriented to the educational pathways and what students can do with a baccalaureate degree in chemistry. The chemistry faculty mentors and peer mentors will share their experiences as STEM students and scientists. Doing so will help ACES scholars build a sense of STEM identity and feel more self-confident and capable as they begin their own educational journey and career exploration.[23.] NC designed numerous professional development opportunities in which ACES scholars can experience their emerging science identity.

c. <u>Project Significance, Objectives and Rationale</u>

Project Significance

Without proper academic guidance and advising, students—particularly first-generation college students—often take unnecessary classes and/or classes that are not accepted by their transfer institutions (in this case, La Sierra University or the University of California). On average, NC students leave the college with 85 units, rather than the 60 credits required to transfer to a baccalaureate program. Students at NC, already economically disadvantaged and pressed for time, cannot afford to make these kinds of mistakes, which cost them dearly in terms of time to degree, associated expenses such as textbooks, tuition and fees, and ultimately delaying their entry into the workforce.

Among undergraduate students, underrepresented minority students are more likely to have undergraduate debt (49%) than their peers (41%), and have a slightly higher-than-average median amount borrowed. The majority of NC's students are Latinx and low-income. On average, 22.3% of NC students qualify for the California College Promise Grant tuition waiver due to financial need of their own or their parents/guardians. In fact, The Institute for College Access and Success (2019), an affordable education advocacy/research group, recently released alarming data that indicate that the total cost to attend California community colleges is more than other public postsecondary institutions in the state, including the University of California system. What College Costs for Low-Income Californians finds that low-income students and families actually pay less to attend the University of California and California State University campuses than they do to attend the California community colleges, because students who attend the universities receive more in financial aid and spend less living in university housing, a cost that can be supported with financial aid. However, research has also shown that many low-income, first generation college students are not comfortable in the traditional university setting and choose the community college route despite the higher cost. In an area with some of the highest poverty rates in the country, these costs are a hardship low-income, first generation college students cannot endure. Therefore, it is imperative that Norco College, as well as the California community college system in general, implement strategies to improve students' academic performance, reduce their time to graduation and/or transfer, and provide financial support.

Many students also encounter difficulty when attempting to transfer. This is another major barrier to bachelor's degree completion for students. NC believes that reducing structural barriers between two- and four-year colleges is necessary to increase STEM baccalaureate attainment rates[24]. This stems from a lack of sufficient community college infrastructure to facilitate transfer, as well as disjointed and confusing articulation agreements that negatively impact transfer rates. In STEM fields, distinguishing between prerequisite major courses and courses designed to build technical skills for non-STEM majors can also be very confusing to students due to course naming conventions and catalogue descriptions. NC will alleviate student confusion by establishing chemistry Transfer Admission Guarantees (TAGs) with the University of California, Riverside and La Sierra University. TAGs are established pathways that offer students from community college guaranteed admission to a specific university as long as students meet minimum requirements of the university's academic program. Another benefit of a TAG is that students receive early review of their academic records, early admission notification, and specific guidance about major preparation and general education coursework.

Project Objectives

Norco College's ACES program will provide scholarship support in conjunction with intensive student supports and opportunities for scholarship recipients to engage in active, collaborative learning outside the classroom and with other ACES scholars. By providing a combination of comprehensive student support services and scholarships, this program will increase the number of low-income community college students who successfully complete their studies and transfer to a baccalaureate program in Chemistry. The objectives for the ACES project are to:

1. Develop feelings of belongingness in STEM among low-income students traditionally underrepresented in STEM and postsecondary education
2. Enable ACES scholars to complete the chemistry pathway and transfer to a baccalaureate program in two years.
3. Foster underrepresented and low-income students' STEM identity.
4. Contribute to the body of knowledge regarding evidence-based practices that improve the recruitment, retention, and success of academically talented, low-income STEM students.

Project Rationale

Rationale for Comprehensive Support Programs. The demographics of the students at NC who enroll in chemistry courses mirror those of the larger student body, with the majority group being Hispanic (56.8%), female (60.9%) and low income (31.3%). Slightly higher numbers of Asian (16.9%) students tend to enroll, with comparable representation among African-American (4.1%) and white (19.7%) students. However, while enrollment mirrors the larger student body, student success data does not.

In examining baseline retention and academic performance metrics, the need for the proposed ACES interventions is evident. Historically, NC has graduated only a handful of STEM majors in the discipline, though most students are retained Fall-to-Fall. A closer look reveals that only a small percentage of students actually enroll full-time with a sufficient course load to transfer in two years. The biggest attrition points, as seen in Table 1, below, occur within the first courses in the STEM sequence. However, attrition continues across the entire set of courses, resulting in a final group of students in the highest-level chemistry course taught that is less than a third of the size of the first course enrollment. NC's ACES will reduce gradual attrition through the intensive, high-impact support systems of the ACES program.

Table 1: Baseline Retention & Success

Metric	Number of Students	Completion (Number)	Completion (Rate)
Fall-to-Fall Retention	940	623	66.3%
30+ Units Earned in One Year	1,615	117	7.2%
60+ Units Earned in Two Years	1,615	113	7.0%

Graduate in Two Years	1,668	82	4.9%

Also, as seen in Table 2, below, student performance in the first, foundational courses in chemistry is problematic, with success rates (students earning a C or better, the required grade for prerequisites) hovering around 65%. These courses are required for nearly all STEM pathways. Unfortunately, the same pattern exists for required college-level math courses. These courses act as gatekeepers and are often taken by NC students multiple times, delaying their progress and creating additional financial and emotional burden. To improve course completion rates and support student success, NC faculty are working to strengthen the chemistry curriculum through the use of inquiry-based learning, culturally responsive pedagogy, and infusion of tasks to build number sense, targeting the gatekeeper courses.

Table 2: Baseline Chemistry Course Success (C or Better)

	2017-2018			2018-2019			2019-2020		
Course	**Enrolled**	**Success**	**Rate**	**Enrolled**	**Success**	**Rate**	**Enrolled**	**Success**	**Rate**
CHE-2A: Intro to Chemistry	702	445	63%	838	582	69%	915	628	69%
CHE-1A: General Chemistry I	160	106	66%	217	150	69%	234	154	66%
CHE-2A: General Chemistry II	121	78	64%	106	61	58%	123	91	74%
CHE 12A: Organic Chemistry I	37	25	68%	38	23	61%	42	23	55%
CHE-12B: Organic Chemistry II	10	9	90%	22	13	59%	20	18	90%

NC will provide ACES scholars with financial assistance and comprehensive high-impact curricular and co-curricular student supports, resulting in successful completion and transfer within two years. NC's ACES project will implement and investigate the impact of project activities to build science identity and efficacy beliefs through mentorship, experiential learning, and additional innovative practices. With these supports and activities, NC's goal is to greatly reduce students' time to completion and transfer into a baccalaureate university and major in STEM.

Rationale for Scholarship Size and Number of Scholars. NC is requesting a Track 2 grant, which will encourage retention and persistence among ACES scholars by allowing them to concentrate on their studies, reduce their need to work, and complete the program in two years. The ACES program will have five separate two-year cohorts: 10 students in Cohort One; 12 students in Cohort Two; 15 students in Cohort Three; 18 students in Cohort Four, and 20 students in Cohort Five (75 total participants). NC will build on the infrastructure of the program to offer more students the opportunity to become ACES scholars as the project progresses. Tables 3 and 4, to the right, indicate progressive award levels for each year of successful completion of studies. The maximum award amount for first year students is lower, with the expectation that some students may choose a different career path or may stop or drop out. The maximum award amount for students will increase in their second year, recognizing students for their persistence in a STEM field. The plan for distribution of scholarships is below, in Table 5.

Table 3: Scholarship Amount Year One

Summer	$500
Fall	$2,000
Winter	$500
Spring	$2,000
Total	$5,000

Table 4: Scholarship Amount Year Two

Summer	$500
Fall	$3,000
Winter	$500
Spring	$3,000
Total	$7,000

Table 5: Distribution of Scholarships

	Year 1- 2022-23	Year 2- 2023-24	Year 3- 2024-25	Year 4- 2025-26	Year 5- 2026-27	Year 6- 2027-28	Totals

Cohort 1 - 10	N=10; $5,000 EA	N=10; $7,000 EA					$12,000
Cohort 2 - 12		N=12; $5,000 EA	N=12; $7,000 EA				$12,000
Cohort 3 - 15			N=15; $5,000 EA	N=15; $7,000 EA			$12,000
Cohort 4 - 18				N=18; $5,000 EA	N=18; $7,000 EA		$12,000
Cohort 5 - 20					N=20; $5,000 EA	N=20; $7,000 EA	$12,000
Total: 75	**$50,000**	**$130,000**	**$159,000**	**$195,000**	**$226,000**	**$140,000**	**$900,000**
Participants Per Year	**10**	**22**	**27**	**33**	**38**	**20**	**75**

It is essential that NC provides ACES scholars with scholarships in an amount that would offset their need to be employed during the academic year. Almost 80% of NC students enroll part-time and the majority juggle earning an education with full- or part-time work. Having to work takes time away from students' ability to complete their education in a timely manner, thus increasing time to completion and entry into a baccalaureate program (and, ultimately, a STEM career). It is for this reason that all NC ACES scholars must be enrolled full-time (at least 12 units in Fall and Spring and 4-6 units in summer and winter). The scholarship amount offer equates to an amount that they would earn if working in a typical part-time, minimum wage occupation. Scholarship funds are also intended to prevent students from having to work during intersessions, providing them with the time to take part in critical activities to increase STEM identity through direct experiential learning and exposure to role models/mentors within a professional career context. To support this identity development, ACES scholars will have the opportunity to participate in research, an internship, or other relevant student activity during both winter and summer intersessions.

d. Pool of Potential Scholars and Determination of Scholarship Amount

Norco College proposes to award up to two years of scholarship support to 75 full-time, academically talented, low-income students with unmet financial need pursuing Chemistry degrees. ACES scholars will receive support for up to two years, as long as they meet minimum program requirements. Table 6, above, demonstrates the number of low-income students with unmet need that are currently registered in Chemistry courses. ***These same STEM students at NC have an average one-year retention rate of 55.8%, and a graduation rate of 29.0% in 4 years.***

Table 6: Number of Domestic Low-Income Students with Unmet Need Currently Registered

College	1st Year	2nd Year	3rd Year	4th Year	Other Years	Avg. GPA	Avg. Unmet Need
STEM	3,061	3,043	2,794	2,881	N/A	2.90	$11,769

Tuition at Norco College is relatively inexpensive with the cost per credit hour of $46 ($552/semester for full-time enrollment). However, the cost of living in the Inland Empire is substantially higher than in many other parts of the country. As such, while students may be able to afford tuition, they struggle to afford other basic needs, including housing and food, and must work, limiting the time they can allocate to their studies. The average cost of education for a full-time NC student for 2019-2020 is in Table 7, above.

Table 7: Cost of Attendance at Norco College 2019-2020

Costs	Living at Home	Living Away from Home
Books and Supplies	$1,972	$1,972
Room and Board	$6,786	$17,946
Transportation	$1,134	$1,278
Personal Expenses	$3,564	$3,996
Enrollment Fees	$1,380	$1,380
Health Fees	$40	$40
TOTAL	**$14,876**	**$26,612**

e. ACES Student Support and Programs

NC has designed a comprehensive program of curricular and co-curricular supports to ensure ACES scholars succeed in completion of their educational pathway and matriculate to a partner institution or another institution of their choosing. NC's plan incorporates: (1) r development of student cohorts; (2) strong faculty, staff, and peer mentorship; (3) comprehensive and concentrated student supports for entering and continuing ACES scholars; and (4) developmental experiences facilitated through partnerships with primary transfer institutions for career development and post-transfer support. In order to ensure NC retains and graduates as many ACES participants as possible, ACES scholars will have access to an array of student support services. An overview of these services and activities to support scholars in their development of academic/scientific skills, necessary psychosocial factors, and academic success follows, discussed below.

Summer Bridge. Summer Bridge is an evidenced-based practice to initiate and socialize incoming NC students to the college environment and academic expectations. The PI and Co-PI will work with the Dean of STEM and Business, & Management and other STEM Pathways personnel, including the assigned Counselor, to develop and facilitate a one-day summer bridge that will include an Introduction to Chemistry workshop, networking with project staff and other Chemistry faculty, and other activities that orient ACES scholars to the college, their studies, and the ACES program. All scholars will be strongly encouraged to participate in the Introduction to Chemistry workshop as a method to build a sense of community among the cohorts, even if they have already completed a comparable basic chemistry course. In addition, during the summer session, as part of the summer bridge program, students will complete an Introduction to College course, taught by Counseling faculty specifically identified and trained for this project. The Introduction to College course, which focuses on integration and expectation-setting aspects for new college students, will introduce participants to academic and occupational programs offered by the college and explore non-cognitive factors contributing to college success. Participants will learn the application of sociological and psychological principles that lead to educational success and goal attainment. Participants will develop a comprehensive student educational plan, reflecting ACES requirements and a pathway that details additional coursework required to attain their educational goals.

Forming a Community of Learners/Cohorts. ACES will form five, two-year cohorts of chemistry majors. Each cohort will begin their educational journey at NC directly after high school graduation by attending a summer bridge program. All students in cohorts will enroll in and complete the same general chemistry courses and one general education course as they move through their two-year ACES pathway. By taking these courses together, students will build peer support networks and benefit from their individual and collective strengths, while developing bonds that will persist as they complete their community college studies and transfer to university. Students in the cohort will also participate in additional co-curricular and professional development activities. The Student Engagement Center will work with the PI to organize social and educational events where former ACES scholars who have successfully completed the program and transferred, as well as faculty mentors can engage in community-building and mutual learning. Professional development activities will be advertised and strongly recommended to Scholars.

Structured Chemistry Pathways. NC developed highly structured pathways that identify the courses students need to complete their goal. These pathways are designed to minimize the choices students and provide them with a roadmap and additional support structures in order to reduce time to completion of a degree/transfer. During the project, NC will work with the University of California, Riverside and La Sierra University to establish a Transfer Admission Guarantee (TAG)/Chemistry Pathway for ACES scholars and future NC chemistry majors, guaranteeing them transfer to either university.

Faculty Advising and Mentoring. Faculty advisement at NC is a process of mentorship and communication between faculty advisors and students that enhances the quality of a student's college experience. Faculty advisors help students explore education and career goals as well as identify program pathways and appropriate courses. Faculty advisors also refer students to an array of college resources. The PI and Key Personnel will serve as faculty advisors/mentors for ACES participants and will meet with scholarship recipients twice per semester to discuss progress, address concerns, and provide scholars

with support and encouragement. The faculty advisors/mentors will work with the counselor to provide appropriate levels of student support throughout the program.

Peer Mentors. Since 2017, NC has engaged in intentional methods of supporting student success and completion with opportunities for students to mentor and support other students. For the ACES program, scholars will have the opportunity to become a peer mentor and/or receive peer mentoring. Second year scholars will be expected to participate in select co-curricular activities with first year scholars. All ACES scholars will also have the opportunity to participate in outreach to high school students. The PI will organize seminars at NC comprised of former scholars and other STEM students who have transferred to La Sierra or the University of California, Riverside, to discuss their experiences and provide mentorship to active ACES scholars. Peer mentorship directly benefits academic and social development of mentors and mentees. Mentors will support students by acting as role models; connecting them with campus resources; sharing their experiences; and assisting with the development of academic skills

Counseling. A counselor from the STEM Pathway program will be assigned to work with ACES participants. Scholars will meet with the assigned ACES counselor at least twice per semester. The counselor will work with each scholar to develop a comprehensive student educational plan that outlines career goals, identifies supportive services, and develops a timeline for degree completion. The counselor will use this plan to monitor student progress and ensure students are accessing services necessary for success. The counselor will follow-up with students at the start of each semester to update the plan and address any new barriers that may arise. The ACES counselor will also work with the PI to offer student success workshops for ACES scholarship recipients, targeting time management, test anxiety, study skills, and other topics.

Student Research/Internship Opportunities. The PI will work with the Dean of STEM, Business, & Management at NC to establish research and internship opportunities for ACES scholars at the University of California, Riverside, and La Sierra University and encourage their participation. In conjunction with the Student Outreach Office, the PI will work with faculty and staff from the universities to provide on-site information workshops with scholarship recipients and organize trips to local/regional research labs and universities to help familiarize students with these environments and increase likelihood that students will pursue opportunities outside of NC.

The Learning Resource Center. The Learning Resource Center at NC is a central hub where students can access tutoring support. The Learning Resource Center includes the Math and Science Success Center, the Writing and Reading Center, and the General Tutoring Center. All tutors are College Learning and Reading Association Certified, which is a nationally accepted standard of skills and training for tutors. All tutors must complete 18 hours of comprehensive tutor training through the ILA-1: Introduction to Tutor Training course. The Learning Resource Center also helps students navigate the on-campus library, provides research assistance to all students, and assists students with finding study groups across campus. The project team will encourage any ACES scholar who is struggling academically to access tutorial assistance through the Learning Resource Center

Pre-Transfer Exposure and Support. NC's Transfer Center is dedicated to increasing the number of students prepared for transfer to baccalaureate-level institutions. The Transfer Center provides encouragement and guidance to students in their various stages of the lifelong career development process. The Transfer Center offers students appointments to speak with a transfer advisor, meet with University representatives, and attend an array of transfer-focused events throughout the year. Transfer staff will work with ACES scholars to personally assist them on their path to transfer. ACES scholars will be exposed to transfer institutions through summer internships and attendance at public seminars and other events hosted at La Sierra University and the University of California, Riverside. The ACES program will also assist second-year ACES scholarship applying to various funded experiential learning/internship programs such as La Sierra's undergraduate research experiences, UCR's RISE summer research program, and national REUs.

Student Engagement Center. The Student Engagement Center supports all aspects of student engagement in co-curricular activities including but not limited to: (1) involvement in community service; (2) physical and mental wellness; (3) employment opportunities (on- and off-campus); (4) activities and

events; (5) field trips; and (6) personal, academic and professional growth opportunities. Student Engagement Center staff are there to ensure that each college student's experience is maximized to its fullest potential within a safe and healthy learning environment. The Student Engagement Center also provides all students access to basic necessities, including clothing, food, and emergency funds, among others.

Student Health & Psychological Services. The Student Engagement Center is also home to Student Health & Psychological Services, which strives to engage students in making informed decisions about their health and well-being. Mental health counselors work with students to overcome various personal issues in their lives, including adjustment to college life, family/relationship issues, stress, anxiety, depression, addiction, sexual assault, harassment, and more. Students are able to meet one-on-one with a counselor at no cost to them. ACES scholars will have access to this valuable service.

Linking College to Career. The Norco College Career Center (also located in the Student Engagement Center) serves students and alumni through career planning and employment services to connect them with tools, resources, people, and organizations that support their paths to success in the workforce. All scholars will have the opportunity to engage in career exploration, personality assessment, industry partnerships, and earn-and-learn/internships in order to support ACES student retention completion. Career resources are also available on the Career Center website for students, faculty, and staff to reference.

f. ACES Project Management Plan

Procedures for Managing the Project

While the Principal Investigator will be responsible for overall project implementation, he will work with the President of Norco College, Dr. Monica Green, and Dr. Jason Parks, Dean of STEM, Business, & Management, to establish a Project Leadership Team. The Project Leadership Team will serve as an advisory committee and work closely with the PI to develop, implement, manage, and assess the project. The Leadership Team will meet quarterly for the duration of the project to review program activities, identify and address potential challenges to project implementation and goal attainment, and work closely with the evaluator and PI to review documentation and data collected throughout the implementation process. The Project Leadership Team will include the PI; Key Personnel; the Dean of STEM, Business, & Management, the Director of Student Financial Services, the assigned STEM Counselor, the Director of Institutional Effectiveness, chemistry faculty from the University of California, Riverside, and chemistry faculty from La Sierra University.

Regular meetings and feedback will ensure ongoing monitoring of the project's progress in implementing key project components in a timely manner and within budget. This will also ensure that the project is fully integrated into NC processes and integrated into the college culture while adhering to the National Science Foundation requirements for administering the ACES program, including budgeting for allowable activities and delivering annual performance reports. While the Leadership Team will provide guidance to the project and help communicate program activities to the college community, the Project Implementation Team (below) will carry out day-to-day activities.

Principal Investigator. The ACES Program will be led by Dr. Virgil Lee, a Professor of Chemistry in the Chemistry Department at Norco College. Dr. Lee has been teaching at Norco College since 2016, and received his Ph.D. in Organic Chemistry from Stanford University. He is a member of the American Chemical Society, has published ten peer-reviewed articles, holds seven patents, and has served as PI on 12 research projects, including two NSF grants. As PI, he will be responsible for day-to-day implementation and management of the project, serve as the NSF contact, serve as a mentor to Scholars, and work with the external evaluator to collect project data to assess program impact to evaluate the efficacy of the ACES project components on student success. With assistance from a Grants Administrative Specialist, Dr. Lee will monitor program expenditures and ensure that the grant is implemented on time, within budget, and in compliance with NSF program requirements.

Senior Personnel. Dr. Christopher Lugo is an assistant professor in Chemistry at NC. In 2018, he earned his Ph.D. in Chemistry from the University of California, Riverside. Before completing his Ph.D.,

Dr. Lugo participated in research with the LaVallo Research Group at the University of California, Riverside, where he contributed to three published studies. For the ACES project, Dr. Lugo will offer student mentoring, develop and facilitate student success workshops and outreach activities, and other project activities each year during the fall and spring semesters.

Grants Administrative Specialist. The Principal Investigator will receive project support from a NC Grant Administrative Specialist. The Grant Administrative Specialist will provide administrative support, work with the Financial Aid and Business Offices to disperse scholarships to students, purchase supplies and materials for student activities, track student participation in grant activities, assist with gathering project data, and present the PI with monthly reconciled accountings of project expenditures.

ACES Counselor. The ACES Counselor will serve as an essential member of the project team. The ACES Counselor will have direct access to student records and will provide the PI will critical information to determine the initial eligibility of potential scholars and ensure that scholarships recipients remain eligible for their scholarships through enrollment in sufficient credits each semester and making satisfactory academic progress. The ACES Counselor will also assist the PI in providing targeted student services to ACES scholars, including counseling services to ensure they are following their comprehensive student education plan on the Chemistry Pathway, helping them transfer within two years.

Financial Aid Representative. The Director of Student Financial Services at NC will assign a Student Financial Services Analyst who will work with the PI to ensure that each scholarship recipient has their official EFC/financial need paperwork completed (as determined by the FAFSA), maintains full-time status (12+ units) and good academic standing; and that he/she receives the scholarship in a timely manner.

Management of Scholar Recruitment, Selection, Retention, and Replacement

Recruitment of Students. The ACES program will build upon the ongoing outreach efforts currently underway by NC's Promise Program. The Promise Program is known throughout the region for giving the opportunity to students to pay no tuition for their first two years, as long as they are enrolled full-time (12+ units) and maintain good academic standing. In 2019-2020, NC's Promise Program served nearly 500 students; almost a third of all incoming freshmen. The ACES program will create targeted recruitment materials and leverage existing communication mechanisms and pathways to disseminate program information as widely as possible, including outreach activities at high schools and information sessions (some of which will include parents). This will ensure that NC recruits academically talented, but low-income students to the ACES program.

NC will also create informational materials (in English and Spanish), an application form, and a list of required documents for the ACES program and distribute these materials during Promise Program information sessions as well as digitally via email and hardcopy through the USPS. During Winter intersession and early Spring semester of 2022, the ACES program will schedule special ACES information sessions, requiring interested students to apply in April/May. This will ensure that applicants are selected in time for the summer bridge program. Each year, the ACES program will follow the same recruiting schedule, but will begin to offer information sessions year-round to attract more students to the program.

Selection of Students. NC created selection criteria that reflects the institution's experience working with and supporting students from diverse backgrounds. The student application to become an ACES scholar will consist of the following required items: (1) a completed FAFSA (demonstrating financial need); (2) submission of high school transcript(s); (3) submission of 3 short essay prompts, mirroring those of the UC transfer application, describing the student's educational and career goals and how participation in ACES will help them achieve those goals; and (4) two letters of recommendation from high school teachers. The Leadership Team will select ACES cohorts during the Spring Semester for scholarship distribution beginning in the summer intersession during the summer bridge. Applicants must be a U.S. citizen, permanent resident, national, or refugee to participate in ACES.

The Project Leadership Team will review all applications submitted by the May 1 deadline date to ensure that the applications are complete and students meet minimum qualifications. The Project

Leadership Team will convene a selection committee meeting to review applications. Prior to the first selection committee meeting, the Project Leadership Team will develop a matrix by which to assess each application. This assessment will include a review of student motivation and commitment to academic studies and STEM career goals, communication and interpersonal skills, and ability to manage time, stress, and resources. The selection committee will then rank each student based on academic and non-academic strengths, awarding scholarships to the students with the greatest need and the ability to benefit.

Retention of Students. Please see section e. ACES Student Support and Programs for the plan to retain students.

Replacing Students Who Lose Eligibility. NC will begin distributing award scholarships in the first few weeks of summer intersession and then continue to provide scholarship support each term for two years. However, to remain eligible for a scholarship, students must maintain full-time enrollment, and overall GPA of 3.0, with a chemistry grade point average (GPA) of 2.7 (the minimum GPA required for entry into UCR's undergraduate chemistry baccalaureate programs). The PI will work with the ACES Counselor to review enrollment status and assess student progress and academic performance for all scholarship recipients at the end of each semester. NC expects some student attrition each semester due to completion and transfer, or student drop/stop out. It is also expected that a small number of scholarship recipients will experience academic hardship while in the program and fall below the minimum requirements for eligibility, particularly with regard to credits attempted/earned and GPA. Some students may also decide after completing the first year that they do not want to pursue a career in STEM.

At the end of each semester, students who are struggling academically will meet one-on-one with the PI and the ACES Counselor to develop a plan of action for improving the student's GPA. If the Scholar has not achieved significant improvement by the following semester, the student may be dropped from the program. To replace these students, NC's ACES program will engage in one of two strategies. If there are a large number of openings, the Project Leadership Team will conduct a mid-year competition to ensure that new students have the opportunity to apply. However, if there are only one or two unused awards, the committee will review applications from the previous competition, confirm student enrollment status, financial need, and academic eligibility, then make awards to the top-ranking students. The Project Management Plan, below, demonstrates the project management responsibilities for the first cohort. The second, third, fourth, and fifth cohorts will be similar to the first, but will be modified based on input from program evaluations.

Plan for Oversight of Student Support Services

The PI will work with the Dean of STEM, Business & Management, the STEM Counselor, and the Financial Aid representative, to coordinate proposed student support services specifically targeted for ACES scholars, including educational plan development and monitoring, a speakers' series highlighting STEM careers, an online networking site for ACES scholars, and social activities throughout the year to bring scholars together and maintain the learning community/cohort. The PI will also work with Riverside Community College District's Communications and Strategic Relations department to produce a dedicated ACES website that offers information about the ACES program, application materials, a master calendar of activities that lists all relevant events and activities, and will assist with updates as necessary (please see Table 8, below, for the ACES Scholars Program Management Plan for Cohort One).

Table 8: ACES Scholars Program Management Plan (Cohort One)

Objective	Program Activities	Performance Outcomes	Timeline	Responsible Person(s)
Planning	1. Program faculty/staff meet 2. Plan/create program orientation & Summer Bridge	1.1 Cohort classes for ACES scholars chosen and implemented 2.1 Implement orientation/Summer Bridge	01/22 – 06/22	PI, Dean of STEM, Business & Management, Counselor,

	3. Plan/create application forms 4. Plan/create recruitment tools	3.1 Forms complete 4.1 Tools complete		Financial Aid Representative
Recruitment	1. Conduct recruitment at feeder high schools 2. Ensure interested applicants complete FAFSA	1.1 List of qualified participants 2.1 Completed FAFSA for all student participants 2.2 Send completed FAFSA to Financial Aid office to determine awards	01/22-05/22	PI, NC Outreach Office
Select Students	1. Meet to review qualified students	1.1 Select participants/alternates 1.2 Notify participants of selection and status in program 1.3 Build cohort list for year 1	April-May 2022	PI, Project Leadership Team, Selection Committee
Program Implementation	1. Conduct student orientation(s) to program 2. Begin program 3. Students meet with counselor and faculty 4. Implement Summer Bridge Program 5. Meet to discuss student progress 6. Students receive comprehensive support, scholarships, and form a learning community	1.1 Orientation review via surveys 2.1 Initial disbursement of scholarships 2.2 Classes/cohorts begin 3.1 Counselor designs student education plan with each student 3.2 Counselor meets with students for progress updates (creates student reports) 3.3 Scholarship students enroll in summer courses if necessary 3.4 Students modify SEP (if necessary) 4.1 Students attend cohort summer program 5.1 Replace scholars who do not meet the minimum program requirements 6.1 Students are surveyed on their experiences	Summer, 2022 (06/22 – 06/23)	PI, Counselor, Financial Aid Representative
Program Assessment	1. Design surveys and records for student admission, progress, and transfer 2. Design database system to track baseline and selected students	1.1. Database management system in place to track baseline and scholarship program students 2.1 Measurement of student admission, progress, completion and transfer rates	Ongoing	PI, External Evaluator, Project Leadership Team

Securing Project Data and Ensuring Student Privacy

NC will use Colleague, a secure database to track scholarship applications and awards. Any demographic information (with specific student identifiers) obtained will be stored separately from personal identifiers and will be kept strictly confidential. The information obtained during the project will be secured and password protected in Colleague. Data will be kept on file for a period of five years after the completion of the project on the secured password protected office computer. After the five-year period has elapsed, the data will be permanently destroyed. Any paper copies of data will be shredded.

The PI will review individual student progress each semester, using information from these files to assess the success of ACES in increasing success, retention, graduation, and transfer rates. The PI will coordinate reporting requirements with the external evaluator, Office of Institutional Research, and the Financial Aid Office to ensure that he has data necessary to report program success, including student GPA (per course and cumulatively), successful course completion rates, and persistence to the next level of courses. This information will be reported in the aggregate to ensure student privacy, although individual student progression data will be used to revise educational plans and offer additional student assistance, as necessary. Colleague will also enable the Grant Administrative Assistant, PI and external evaluator to track student participation in project activities as well as other STEM activities endorsed and encouraged by the PI. All ACES scholar files will include each student's initial ACES application, the Financial Aid award letter, the student′s educational plan (updated each semester), a signed copy of the ACES scholar's contract, documentation of attendance in cohort activities, and semester transcripts.

g. Generation of Knowledge

The knowledge generating component of this project will focus on understanding how various aspects of ACES scholars' experience help to foster transfer mindset and build their STEM efficacy. This research will contribute significantly to the growing body of literature about best practices in the recruitment, retention, success, and completion as well as science identity formation among ow-income students, targeting students from racial and ethnic groups that are traditionally underrepresented in postsecondary education, l and the effect on academic performance and persistence in STEM.

h. Evaluation

The PI will work with an external consultant, Redwood Consulting Collective, to evaluate the impact of this project, utilizing a collaborative and utilization-focused approach (Shulha et al, 2015; Patton, 2008) to guide the evaluation plan. Adopting this approach will ensure the evaluation is sensitive to stakeholder concerns and needs and that it provides ongoing formative feedback to support high fidelity of implementation and ongoing program improvement. The evaluation will employ a two-stage, mixed-methods approach to holistically evaluate the project's implementation and outcomes. The evaluation activities will be informed by the existing literature on best practices in higher education STEM pedagogy and student support. The evaluator will work closely with the project team members to ensure that evaluation activities are incorporated meaningfully into the project plan.

Evaluation Questions

Formative Evaluation: 1.1 To what extent are project activities implemented with high quality and fidelity to the project plan? 1.2 To what extent do ACES scholars participate, enjoy, and benefit from project activities (e.g., summer bridge experience, mentoring activities, & STEM internships)? 1.3 What implementation barriers or challenges (if any) arise and how are these challenges overcome?

Summative Evaluation: 2.1 To what extent have the project objectives been met and what progress has been made towards achieving the project's long-term goal? 2.2 What project activities have had the greatest impact on ACES scholars?

Stage 1: Formative Evaluation (Y1-Y6)

During each project year, the evaluation team will evaluate the extent to which the project activities were implemented successfully and document the experiences and outcomes of each ACES student cohort. The evaluator will partner with the project team to track participant involvement in different

activities and implementation of the project. Each year the evaluator will also use complementary methods (i.e., surveys and interviews) to capture a range of stakeholder perspectives on implementation quality and document implementation successes and challenges, as well as students' outcomes. The evaluation team will work closely with the project team to contextualize and interpret evaluation findings and provide the project team with actionable data and recommendations for decision-making and improvement.

Formative evaluation methods: Formative evaluation methods will include: Dosage of participation in project activities, secondary data analysis of student outcomes provided by NC's Institutional Research office, interviews or focus groups with project team members and participants, and a brief ACES scholar survey that will examine change in Scholars in areas including but not limited to science identity, STEM self-efficacy, and career awareness and exposure.

Stage 2: Summative Evaluation (Y6)

In the final project year, the evaluation team will conduct a summative evaluation to determine the extent to which project objectives have been met across the lifetime of the grant and document the impact of the project on student outcomes. Progress towards long-term goal achievement will be captured through analysis of academic outcomes among Scholars compared to non-participants and NC's historical averages

Summative evaluation measures: Summative evaluation measures will include: Interviews with project team members, participating faculty, and administrators, secondary data analysis of ACES scholar and comparison student outcomes including course completion rates, STEM major retention, degree completion rates, and university transfer rates. ACES scholar outcomes will also be compared to historical averages to examine pre/post grant change.

Evaluation Collaboration

Collaborating with project team – Redwood Consulting will work closely with the project management team to provide them opportunity to give input and feedback on evaluation methods and measures. As questions evolve over the course of project implementation, evaluation activities may be adapted to ensure they are responsive to the team's information needs.

Analysis and Reporting

Quantitative data derived from surveys, observations, participation records, and student data will be analyzed using descriptive and inferential statistical techniques (e.g., gap analysis, repeated measures analysis). Student data will be disaggregated by STEM discipline, ethnicity, and gender. Qualitative data derived from interviews, focus groups, and other sources will be systematically coded and thematically analyzed.

Annual reports will triangulate findings across data sources to derive overarching themes, document implementation challenges, along with specific approaches that were successful in overcoming them, present evidence of progress towards goal achievement, and provide evaluative conclusions regarding each evaluation question. Evaluative findings will also be presented to the project team each year, along with data-driven recommendations for improvement. Finally, the evaluator will keep project team members updated via regular meetings and progress updates.

i. <u>Dissemination</u>

The PI will work with other members of the Project Leadership Team to disseminate the results of this project. Locally, the Leadership Team will regularly inform STEM faculty of the activities of this project and its impact on ACES scholars. The Project Leadership Team will also share this information with the Academic Senate, Associated Students, executive administration, the Board of Trustees, and the Riverside Community College District Foundation, with the hope of generating additional program and scholarship support to leverage federal funds. These dissemination activities will highlight student stories and share, district-wide, individual student achievements and successes. Regionally, the PI will share the

success of this project with other community colleges four-year universities as well as with other industry and higher education groups. Members of the Project Leadership Team will also attend meetings of local STEM groups to highlight program successes and identify additional resources for students.

Statewide and nationally, the PI will present at meetings and conferences. The PI will identify opportunities for participation on statewide efforts to increase student interest, enrollment, retention, and completion in STEM fields. There is currently an initiative underway by the University of California, California State University, and the California Community Colleges Chancellor's Office to increase student enrollment in STEM. The PI will attend joint meetings of California's public higher education systems, as appropriate, to not only solicit information but to network with others who are working to address declining interest in STEM careers. Lastly, the PI will seek opportunities nationally to share the results of this project at conferences organized by such entities as the Alliance for Hispanic Serving Institution Educators, American Association of Community Colleges, the Council for Opportunity in Education, and the Hispanic Association of Colleges and Universities. Although funding may limit attendance at national workshops, the PI will submit requests to present and then work with the college's leadership, Grants Office, and Foundation to identify resources to fund travel opportunities.

j. Broader Impacts

Riverside County, where Norco College is located, has among the lowest educational attainment rates in the state, with less than 25% of residents holding an associate degree or higher. Research on social economic mobility states that over their lifetime, students who graduate with just an associate's degree will earn less than half that of those attaining a bachelor's degree. There has been much research and debate on the exponential increase in college debt and its impact on low-income students seeking a bachelor's degree, as well as on those who continue to struggle with debt long after graduation. ACES will study the impact of providing low-income and underrepresented students with financial and comprehensive academic and personal supports in conjunction with social integration at both the community college and university levels, providing critical information to state and national discussions regarding ways to decrease college debt while increasing STEM bachelor's degree attainment for low-income and traditionally underrepresented minorities.

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NAME: Virgil James Lee

POSITION TITLE & INSTITUTION: Associate Professor of Chemistry, Norco College

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
The California State University Los Angeles	Los Angeles, CA	Chemistry (major) Mathematics (minor)	BS	1986
Stanford University	Palo Alto, CA	Organic Chemistry	Ph.D.	1992
UCLA	Los Angeles, CA	Business	MBA	1998

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
8/16-present	Assistant/Associate Professor, Norco College (Norco CA)
9/12-6/16	Lecturer, California State Polytechnic University, Pomona (Pomona, CA)
3/00-2/06	Vice President, Maxdem Incorporated (San Dimas, CA)
9/96-3/00	Manager of Market Development, Maxdem Incorporated (San Dimas, CA)
9/92-6/96	Program Manager, Maxdem Incorporated (San Dimas, CA)
8/86-9/87	Research Associate, Maxdem Incorporated (San Dimas, CA)

C. PRODUCTS
(see PAPPG Chapter II.C.2.f.(i)(c))
Products Most Closely Related to the Proposed Project

Publications
1) Collman, Lee, Kellen-Yuen, Zhang, Ibers, and Brauman Journal of the American Chemical Society 1995, 117, 692-703; "Threitol-Strapped Manganese Porphyrins as Enantioselective Epoxidation Catalysts of Unfunctionalized Olefins"
2) Collman, Zhang, Lee, Uffelman, and Brauman Science 1993, 261, 1404-1411; "Regioselective and Enantioselective Epoxidation Catalyzed by Metalloporphyrins"

Principal Investigator Activities with the NSF
3) Structure-Property Relationships for Polyquinolines; $58,500 (1997); NSF Phase I (DMI-9505282)
4) Structure-Property Relationships for Polyquinolines $292,000 (1997-1998) NSF Phase II (DMI-9505282)
5) Polyphenylene Bone Replacements and Supports; $64,900 (1997-1998); NSF Phase I

Other Significant Products, Whether or Not Related to the Proposed Project

Examples of Other Principal Investigator Activities
1) POSS Modified Polyphenylenes for Lightweight Rocket Components; $735,940 (2001-2002); Air Force Phase II (F04611-00-C-0012)
2) Rigid-Rod Polymers for Optical Applications; $99,600 (1997) DARPA Phase I
3) Rigid-Rod Polymers for Optical Applications; $748,000 (1997-1999); Army Phase II (DAAG-55-98-007)
4) Ultra-Low-Cost Rigid-Rod Polymers; $59,900 (1997); Navy Phase I (N00014-97-C-0155)
5) 12. Rigid-Rod Polymers for Low Cost MCMs [Multichip Modules]; $747,000 (1996-1998); DARPA Phase II (DAAH01-96-C-R046)

D. SYNERGISTIC ACTIVITIES
(see PAPPG Chapter II.C.2.f.(i)(d))

American Chemical Society Activities
Member (1987-present), Member-at-Large (2000-2020) and Member of the Board of Directors (2002, 2005, 2008, 2011, & 2020) of the Southern California Section; National Councilor (2003-2006, 2012-2020); Secretary (2014) and President (2015) of the Western Region Caucus; Member, Constitution and Bylaws Committee (2005-2006 & 2012-2020)

Astralux Environmental Solutions (Boulder, Colorado), Member of the Board of Directors (11/07-9/09)

NAME: Dr. Christopher Lugo

POSITION TITLE & INSTITUTION: Assistant Professor, Chemistry, Norco College, Norco, CA

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
University of California,	Riverside, CA,	Chemistry	B.S.	2012
University of California,	Riverside, CA,	Chemistry	M.S.	2014
University of California,	Riverside, CA,	Chemistry	Ph.D.	2018

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
2020-present	Assistant Professor, Chemistry, Norco College, Norco, CA
2017-2020	Adjunct Faculty, Chemistry, Norco College, Norco, CA
2017	Adjunct Faculty, Riverside City College, Riverside, CA
2015-2018	Teaching Assistant, University of California, Riverside, Riverside CA

C. PRODUCTS
(see PAPPG Chapter II.C.2.f.(i)(c))
Products Most Closely Related to the Proposed Project

N/A

Other Significant Products, Whether or Not Related to the Proposed Project

(1) J. F. Kleinsasser, S. E. Lee, C. A. Lugo, V. Tej, S. G. McArthur, V. Lavallo, " Synthesis of an Anionic Au(I) Hydroamination Precatalyst Supported by Charged Hydrido-Carboranyl Phosphine Ligands " Polyhedron, 2018, 156, 245-248; (2) 2. J. Estrada, C.A. Lugo, S.G. McArthur, V. Lavallo, " The Inductive Effects of 10 and 12-Vertex closo-Carborane Anion Ligand Substituents: Cluster Size and Charge Make a Difference " Chem. Commun., 2016, 52, 1824-1826; (3) 3. C.A. Lugo, C. Moore, A. Rheingold, V. Lavallo, " Synthesis of a Hybrid m-Terphenyl/o-Carborane Building Block: Applications in Phosphine Ligand Design " Inorg. Chem., 2015, 54, 2094 – 2096; (4) Kalinina, K. Worsley, C. Lugo, S. Mandal, E. Bekyarova, and R. C. Haddon, " Synthesis,Dispersion, and Viscosity of Poly(ethylene glycol)-Functionalized Water-Soluble Single-Walled Carbon Nanotubes " Chem. Mater., 2011, 23, 1246 – 125.

D. SYNERGISTIC ACTIVITIES
(see PAPPG Chapter II.C.2.f.(i)(d))

2020-present Faculty Advisor/Mentor, Norco College
2019-present Program Review Committee, Norco College
2012-2018 Undergraduate Mentor, Chemistry, University of California, Riverside
2015-2016 High School Summer Research Mentor, University of California, Riverside
2013-2014 Science Olympiad Coach, University of California, Riverside

SUMMARY PROPOSAL BUDGET

YEAR 1

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**28,955**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**31,955**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**31,955**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,264**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**40,219**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**2,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **50,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**10**) TOTAL PARTICIPANT COSTS				**50,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**3,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**20,000**	
TOTAL OTHER DIRECT COSTS				**23,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**115,219**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 65219)**					
TOTAL INDIRECT COSTS (F&A)				**24,457**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**139,676**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**139,676**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

1 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 2

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**29,579**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**32,579**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**32,579**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,437**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**41,016**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**4,800**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **130,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**22**) TOTAL PARTICIPANT COSTS				**130,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**5,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**22,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**197,816**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 67816)**					
TOTAL INDIRECT COSTS (F&A)				**25,431**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**223,247**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**223,247**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 3

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**30,858**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**33,858**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**33,858**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,790**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**42,648**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**4,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **159,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**27**) TOTAL PARTICIPANT COSTS				**159,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**10,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**27,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**232,648**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 73648)**					
TOTAL INDIRECT COSTS (F&A)				**27,618**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**260,266**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**260,266**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 4

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**31,530**	
2. **Chris Lugo - Senior Faculty**	0.05	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.05	0.20	0.25	**34,530**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**34,530**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,976**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**43,506**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**5,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **195,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**33**) TOTAL PARTICIPANT COSTS				**195,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**12,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**29,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**272,506**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 77506)**					
TOTAL INDIRECT COSTS (F&A)				**29,065**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**301,571**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**301,571**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 5

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**32,219**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**35,219**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**35,219**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**9,167**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**44,386**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**5,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **226,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**38**) TOTAL PARTICIPANT COSTS				**226,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**13,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**30,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**305,386**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 79386)**					
TOTAL INDIRECT COSTS (F&A)				**29,770**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**335,156**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**335,156**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 6

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - pi**	0.00	0.20	0.14	**32,925**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**35,925**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**35,925**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**9,362**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**45,287**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**4,800**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **140,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**20**) TOTAL PARTICIPANT COSTS				**140,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**5,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**22,500**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**212,587**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 72587)**					
TOTAL INDIRECT COSTS (F&A)				**27,220**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**239,807**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**239,807**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

Cumulative

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	1.20	0.84	**186,066**	
2. **Chris Lugo - Senior Faculty**	0.05	0.00	0.66	**18,000**	
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.05	1.20	1.50	**204,066**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**204,066**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**52,996**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**257,062**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**25,600**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **900,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**150**) TOTAL PARTICIPANT COSTS				**900,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**48,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**105,000**	
TOTAL OTHER DIRECT COSTS				**153,500**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**1,336,162**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)				**163,561**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**1,499,723**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**1,499,723**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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C ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

Budget Justification

PERSONNEL

Principal Investigator: Virgil Lee, Ph.D., Associate Professor of Chemistry. Funds are requested for 20% academic year effort annually, and stipends (special projects) for summer and winter intersessions. As PI, he will be responsible for day-to-day implementation and management of the project, serve as the NSF contact, serve as a mentor to Scholars, and work with the external evaluator to collect project data to assess program impact to evaluate the efficacy of the ACES project components on student success. With assistance from the Grants Administrative Specialist, Dr. Lee will monitor program expenditures and ensure that the grant is implemented on time, within budget, and in compliance with NSF program requirements.

Senior Personnel: Christopher Lugo, Ph.D., Assistant Professor of Chemistry. Dr. Lugo will dedicate 18 hours of his institutional service hours towards project activities in fall and spring. He will be involved in student mentoring, workshop and outreach activities, as well as project events and experiences. Funds are requested to compensate him with stipends (special projects) in summer to participate in the Summer Bridge Program and winter to attend ACES-sponsored activities.

FRINGE BENEFITS

Riverside Community College District offers a comprehensive benefits package to employees that includes all health benefits, retirement and workers' compensation. Funds requested represent 19.4% of fixed costs, as well as 20% of the PI's salary for Health & Welfare in fall and spring of each year. Funds budgeted include anticipated increases in fringe benefits over the six-year grant period.

EQUIPMENT

No funds are being requested for equipment.

TRAVEL

In years 2-6 funds are requested for the PI to travel to professional conferences relevant to S-STEM and to the present preliminary project information and disseminate the findings of working with underrepresented community college students in Chemistry. These may include such conferences as HACU, AHSIE, SCCUR, and others. Without knowing exact location for future conferences, we have budgeted modestly for economy travel based on average costs our faculty incur to cover airfare or ground travel, lodging, per diem, and incidentals ($1,800 year 2, $1800 years 6). Funds are also requested for the PI and select student scholars to attend regional and national conferences to present what they learned in summer research opportunities, meet with industry professionals, and to interact with STEM students enrolled at four-year universities.

PARTICIPANT SUPPORT

Scholarships will be given to a cohort of 10 in year one, increasing each year, and ending with a cohort of 20 in year 5 (total of 75 participants) The scholarships will be in the amount of $5,000 in year one and increase to $7,000 in year two as a way of incentivizing and rewarding student persistence. This amount was chosen to maximize the number of scholars we support, while ensuring that they receive significant funding to prevent them from having to borrow funds for their unmet need and from having to be employed during the academic year.

Number, Size, and Duration of ACES Scholarships

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cohort 1-10	N=10; $5,000	N=10; $7,000				
Cohort 2-12		N=12; $5,000	N=12; $7,000			
Cohort 3-15			N=15; $5,000	N=15; $7,000		
Cohort 4-18				N=18; $5,000	N=18; $7,000	
Cohort 5-20					N=20; $5,000	N=20; $7,000
Totals	$50,000	$130,000	$159,000	$195,000	$226,000	$140,000

Total ACES scholars = 75; Each scholar supported @ $12,000 over 2 years ($5,000 in year 1 and $7,000 in year two); Total scholarship dollars distributed over life of grant = 75 scholars x $12,000 = $900,000 (60% of total grant amount).

OTHER DIRECT COSTS

Materials and Supplies

Funds are requested for materials to develop program brochures, newsletters, and other documents to promote the program, and for ACES hands-on activities (e.g., Rocket Project, NASA SUITS). Funds are also being requested for materials and supplies needed for program orientations and the annual Summer Bridge Program.

Other-Evaluation Services

For grant evaluation services, NC has agreed to work with Redwood Consulting Collective. Funds are requested in the amount of $20,000 in year 1, and $17,000 each year thereafter, for a total of $105,000. This represents 7% total cost of this project. Redwood Consulting will be supported by NC's Office of Institutional Research to ensure they have access to all educational student records necessary to complement their empirical work. A detailed evaluation work plan can be found in the project narrative.

INDIRECT COSTS

NC has a federal negotiated indirect cost recovery rate of 37.5% modified total direct costs.

*PI/co-PI/Senior Personnel Name: Dr. Virgil Lee

***Required fields**

Note: NSF has provided 15 project/proposal and 10 in-kind contribution entries for users to populate. Please leave any unused entries blank.

Project/Proposal Section:

Current and Pending Support includes all resources made available to an individual in support of and/or related to all of his/her research efforts, regardless of whether or not they have monetary value.[1] Information must be provided about all current and pending support, including this project, for ongoing projects, and for any proposals currently under consideration from whatever source[2], irrespective of whether such support is provided through the proposing organization or is provided directly to the individual. Concurrent submission of a proposal to other organizations will not prejudice its review by NSF, if disclosed.[3]

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current, Pending, Submission Planned, and Transfer of Support from top to bottom

[1] If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.
[2] For example, Federal, State, local, foreign, public or private foundations, non-profits, industrial or other commercial organizations or internal funds allocated toward specific projects.
[3] The Biological Sciences Directorate exception to this policy is delineated in PAPPG Chapter II.D.2.

Projects/Proposals

1. *Project/Proposal Title : Accelerating Chemistry Engagement & Success

*Status of Support : ○ Current ◉ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available): N/A

*Source of Support: National Science Foundation

*Primary Place of Performance : Norco College, Norco, CA

Project/Proposal Start Date (MM/YYYY) (if available) : 07/2022

Project/Proposal End Date (MM/YYYY) (if available) : 06/2028

*Total Award Amount (including Indirect Costs): $ 1,499,723

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1. 2022	2.00	4. 2025	2.00
2. 2023	2.00	5. 2026	2.00
3. 2024	2.00	6. 2027	2.0

2. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

3. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

4. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

5. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

6. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

7. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

8. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

9. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

10. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

11. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

12. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

13. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

14. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

15. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

In Kind Contributions

*Required fields

In-Kind Contribution Section:

Current and Pending Support also includes in-kind contributions (such as office/laboratory space, equipment, supplies, employees, students). If the in-kind contributions are intended for use on the project being proposed to NSF, the information must be included as part of the Facilities, Equipment and Other Resources section of the proposal and need not be replicated in the individual's Current and Pending Support submission. In-kind contributions not intended for use on the project/proposal being proposed that have associated time obligations must be reported below. If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current to Pending from top to bottom

1.*Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)
1.	
2.	
3.	

Year (YYYY)	Person Months (##.##)
4.	
5.	

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

2. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

3. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

4. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

5. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

6. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

7. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

8. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

9. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

10. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

*PI/co-PI/Senior Personnel Name: Dr. Christopher Lugo

*Required fields

Note: NSF has provided 15 project/proposal and 10 in-kind contribution entries for users to populate. Please leave any unused entries blank.

Project/Proposal Section:

Current and Pending Support includes all resources made available to an individual in support of and/or related to all of his/her research efforts, regardless of whether or not they have monetary value.[1] Information must be provided about all current and pending support, including this project, for ongoing projects, and for any proposals currently under consideration from whatever source[2], irrespective of whether such support is provided through the proposing organization or is provided directly to the individual. Concurrent submission of a proposal to other organizations will not prejudice its review by NSF, if disclosed.[3]

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current, Pending, Submission Planned, and Transfer of Support from top to bottom

[1] If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.
[2] For example, Federal, State, local, foreign, public or private foundations, non-profits, industrial or other commercial organizations or internal funds allocated toward specific projects.
[3] The Biological Sciences Directorate exception to this policy is delineated in PAPPG Chapter II.D.2.

Projects/Proposals

1. *Project/Proposal Title : Accelerating Chemistry Engagement & Success (ACES)

*Status of Support : ○ Current ◉ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available): NA

*Source of Support: National Science Foundation

*Primary Place of Performance : Norco College, Norco, CA

Project/Proposal Start Date (MM/YYYY) (if available) : 07/2022

Project/Proposal End Date (MM/YYYY) (if available) : 06/2028

*Total Award Amount (including Indirect Costs): $ 1,499,723

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1. 2022	1.00	4. 2025	1.00
2. 2023	1.00	5. 2026	1.00
3. 2024	1.00	6. 2027	1.00

2. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

3. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

4. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

5. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

6. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

7. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

8. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

9. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

10. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

11. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

12. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

13. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

14. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

15. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

In Kind Contributions

*Required fields

In-Kind Contribution Section:

Current and Pending Support also includes in-kind contributions (such as office/laboratory space, equipment, supplies, employees, students). If the in-kind contributions are intended for use on the project being proposed to NSF, the information must be included as part of the Facilities, Equipment and Other Resources section of the proposal and need not be replicated in the individual's Current and Pending Support submission. In-kind contributions not intended for use on the project/proposal being proposed that have associated time obligations must be reported below. If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current to Pending from top to bottom

1.*Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)
1.	
2.	
3.	

Year (YYYY)	Person Months (##.##)
4.	
5.	

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

2. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

3. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

4. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

5. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

6. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

7. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

8. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

9. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

10. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

Norco College
Facilities, Equipment, and Other Resources

Facilities and Equipment

STEM Center

Norco College has a STEM Center on campus that provides the following amenities and equipment to STEM students:

- Computer lab that is equipped with all necessary software programs needed for STEM students to complete assignments.
- Laptops are available to check out at no cost to students to use in the center and at home
- Study Spaces for individual and/or group study sessions, and tutoring sessions
- Workshop space and tools for students to build STEM-related projects
- Free use of copier and printers for students to print/copy assignments as needed

Chemistry Labs

Norco College has two labs dedicated to chemistry courses.

Other Resources

STEM Counseling Services

The School of STEM Counselor is located in the STEM Center. Students can schedule an appointment with the STEM counselor to: (1) Develop a Student Educational Plan; (2) Review Associate Degree and/or transfer requirements; (3) Provide a graduation and/or transfer check; (4) Complete a Dismissal/Readmit Contract; (5) Provide Career Guidance; (5) Assist students with grade related and other academic/course decisions

Resource Library

The resource library at NC provides students with STEM-related journals, books, and other STEM-related materials.

Learning Resource Center

The Learning Resource Center will identify and hire tutors who successfully completed Chemistry courses at Norco College. These tutors will provide free tutoring in the STEM Center and will also disseminate the course material to help students on how to study. Students who attend tutorial sessions will also learn appropriate application of study strategies, e.g., note taking, organization, etc. The Learning Resource Center also includes a Math Center, a Writing and Reading Center, and the General Tutoring Center. These three centers provide comprehensive tutoring services for many subjects, including general education, writing, math and chemistry.

Faculty Advising and Mentoring

Faculty advisement at NC is a process of mentorship and communication between faculty advisors and students that enhances the quality of a student's college experience. Faculty advisors help students explore education and career goals as well as identify program pathways and appropriate courses. Faculty advisors also refer students to an array of college resources. The PI will serve as faculty advisor/mentor for project participants and will meet with scholarship recipients twice per semester to discuss progress, address concerns, and provide support and encouragement. The faculty advisor/mentor will work with the counselor to provide appropriate levels of student support throughout the program.

Student Engagement Center

The Student Engagement Center supports all aspects of student engagement in co-curricular activities including but not limited to: (1) involvement in community service; (2) physical and mental wellness; (3) employment opportunities (on- and off-campus); (4) activities and events; (5) field trips; and (6) personal,

academic and professional growth opportunities. Student Engagement Center staff are there to ensure that each college student's experience is maximized to its fullest potential within a safe and healthy learning environment. The Student Engagement Center also provides all students access to basic necessities, including clothing, food, and emergency funds, among others.

Student Health & Psychological Services
Student Health & Psychological services. as well as Student Health & Psychological Services, which strives to engage students in making informed decisions about their health and well-being. Mental health counselors work with students to overcome various personal issues in their lives, including adjustment to college life, family/relationship issues, stress, anxiety, depression, addiction, sexual assault, harassment, and more. Students are able to meet one-on-one with a counselor at no cost to them. Project participants will have access to this valuable service.

STEM Club
The STEM Club provides its members with STEM-related opportunities, field trips, and hands-on projects (e.g., rocket project and NASA SUITS).

Student Success Workshops
The STEM Student Success Center hosts a series of student success workshops and a speaker series of alumni, as well as STEM industry leaders.

University Representative Visits
The STEM Student Success Center holds meeting with university representatives to review admission and transfer requirements and also to look over student transcripts.

Career Center
The Career Center provides students with many free, readily accessible online career-related websites, transfer tools, and tutorials for homework assistance websites including:

Career Tools
- STEM Careers - resource website for those seeking careers in STEM
- Career Café is a virtual Career Center open 24/7
- Eureka - offers a collection of occupational and career-related information
- California Colleges - an official source for college and career planning
- My Majors - Assists students in choosing a major

Transfer Tools
- AA-T/AS-T Getting an AA-T or an AS-T Degree makes it easy to transfer from a California community college into the CSU system.
- STEM Pathway Project at University of California, Riverside (UCR)
- ASSIST - an online student-transfer information system that shows how course credits earned at one public California College or university can be applied when transferred to another.
- The Transfer Planner - Is a tool to help you track and plan your California Community College work to meet general education requirements for the California State University (CSU) and the University of California (UC).
- CSU Mentor - Assists students in planning for college, in selecting the appropriate CSU campus to attend, how to finance their education, applying for admission.
- UC Admissions
- TAG (Transfer Admission Guarantee) - Seven UC campuses offer students attending a California Community College guaranteed admission through a TAG.

- x NC Honors Program - The RCCD Honors Program is a member of the Honors Transfer Council of California. These memberships provide our honors students with access to negotiated transfer agreements available only to honors students.
- x TAP (Transfer Alliance Program) - The RCCD Honors Program is a member of UCLA's Transfer Alliance Program.
- x Association of Independent California Colleges and Universities (AICCU) is the unified statewide voice of California's private, non-profit, WASC accredited colleges and universities for state and federal policy issues.

Homework Tutorials

- x Khan Academy - has a library of over 3,000 videos covering everything from arithmetic to physics, finance, and history and 315 practice exercises.
- x Guides available at the NC Library:
  - Basic Mathematics and Pre-Algebra
  - College Geometry
  - Elementary, Intermediate, and College Algebra
  - Pre-Calculus and Calculus
  - Trigonometry
- x Math and Reasoning Skills Improvement
- x Science Skills Improvement
- x 1001 Math Problems - assists students with math by providing content about math rules land how to apply them to problems.
- x Study Stack - provides students with flashcards to help them study online or via app.

Personnel

Grants Administrative Specialist (leveraged resource). NC will identify a Grants Administrative Specialist who will dedicate up to 20% time and effort, year-round, to support ACES. The Grant Administrative Specialist will provide administrative support to the PI, work with the Financial Aid and Business Offices to disperse scholarships to students, purchase supplies and materials for student activities, track student participation in grant activities, assist with gathering project data, and present the PI with monthly reconciled accountings of project expenditures.

ACES Counselor (leveraged resource). The ACES Counselor will dedicate 5% time and effort to serve as an essential member of the project team. The ACES Counselor will have direct access to student records and will provide the PI will critical information in not only determining the initial eligibility of potential scholars, but ensuring that scholarships recipients remain eligible for their scholarships through enrollment in sufficient credits each semester and making satisfactory academic progress. The ACES Counselor will also assist the PI in providing targeted student services to ACES scholars, including counseling services to ensure they are following their comprehensive student education plan on the Chemistry Pathway, helping them transfer within two years.

Financial Aid Representative (leveraged resource). The Director of Student Financial Services will assign a Student Financial Services Analyst at 5% time and effort who will work with the PI to ensure that each scholarship recipient has their official EFC/financial need paperwork completed (as determined by the FAFSA), maintains full-time status (12+ units) and good academic standing; and that he/she receives the scholarship in a timely manner.

Planning and Recruitment Activities, Year 1

Norco College will use leveraged resources to support project planning and recruitment activities for Cohort One of the ACES project.

Data Management Plan
Norco College-ACES

As part of the California Community College System, Norco College (NC) collects and reports student data via the MIS (Management Information System). The College has extensive systems in place to track students across programs and time periods, their academic performance, and course and program outcomes. NC has functional and up-to-date systems that can track a specific student's college experience from enrollment in a specific course, to grades per course to progress toward completion, to moving from one District college to another, to providing certificate and degree information on that student and any cohort of students.

NC also has the ability to assign unique identifiers to special populations that allow accurate evaluation of and reporting on special programs and grants. The students served through the NC S-STEM project will be assigned an identifier so that appropriate monitoring can occur at the individual student level as well as in the aggregate. Principal Investigator (PI) Dr. Virgil Lee will work closely with NC's Office of Institutional Research and Effectiveness to obtain relevant data at regular intervals for the purposes of data reconciliation, analysis and reporting.

The data collected during this project will include numerical data, obtained from student records; participatory data, collected by faculty mentors; and qualitative evaluation measures including survey and interview results, collected by Redwood Consulting Collective (the external evaluator) and the PI. This project will not involve laboratory animals or other non-human data. Human data is associated with the project's goal of increasing undergraduate student participation, retention, and graduation in STEM disciplines, before and after transfer, including underrepresented and low-income students.

The S-STEM project will utilize data collection and storage procedures that comply will all federal and institutional guidelines for the protection of human subjects. The evaluation and research plans involve collection of standard academic records, as well as supplemental data used to demonstrate project impact and outcomes. The Project Leadership Team will collaborate with the external evaluator to establish appropriate data collection, organization, and storage procedures for student records, survey, interview transcripts, and other relevant project data. Data will be made available to NSF and other relevant agencies upon request.

The data collection to support the program evaluation will be done in a collaborative manner; however, analysis and reporting will be the responsibility of the evaluation team and will not include names or identifying information on reports furnished to the PI. The external evaluator will be responsible for protecting participant confidentiality, and will ensure that all evaluation materials will be securely stored. Only aggregated results will be used for dissemination and publication. NC considers the confidentiality of our participants a high priority, and every effort will be made to preserve it. The data will be preserved for at least three years beyond the award period, as required by NSF guidelines.

NORCO COLLEGE

April 5, 2021

National Science Foundation
2415 Eisenhower Avenue
Alexandria, Virginia 22314

To Whom It May Concern,

The Norco College Financial Aid Office understands guidelines and requirements of the S-STEM program. Below, the Financial Aid Office has confirmed the institutional definition of low income, and is formally stating its commitment to support the S-STEM project as described in the proposal, if awarded.

At Norco College, financial need is the difference between the cost of attendance (COA) at a school and a student's Expected Family Contribution (EFC). While COA varies from school to school, a student's EFC does not change based on the school of attendance. Most financial aid offers will not meet a student's entire calculated financial need. This is because federal programs have annual and lifetime limits or a school may not have enough funds to meet the financial needs of every student who applied.

The following federal needs-analysis formula is used to compute financial need for students that applied for federal financial aid:

Cost of Attendance (COA) – Expected Family Contribution (EFC) = Financial Need

Unmet need is the gap between the cost of attendance and all student resources that do not need to be repaid, such as scholarships, grant aid, Federal Work Study and a student's Expected Family Contribution (EFC), calculated in the Free Application for Federal Student Aid (FAFSA). Unmet Need is defined as the difference between Financial Aid Award and Financial aid need.

Financial Need - Financial Aid awarded = Unmet Need

At Norco College, the 2019-2020 full time annual total cost of attendance for a student living at home was $14,876; for a student living away from home, it was $26,612. The average unmet need of low-income students in 2019-2020 was $11,769.

If the National Science Foundation has any questions or concerns regarding Norco College's definition of Unmet Need, I can be reached at (951) 372-7137, or by email at maria.gonzalez@norcocollege.edu.

Sincerely,

Maria Gonzalez

Maria Gonzalez, Ed.D.
Director Student Financial Services
Norco College

Norco College
NSF S-STEM Project Details

Name of institution =	Norco College
Anticipated number of unique Scholars supported =	72
Anticipated average annual amount of each scholarship =	$6,250
Anticipated number of years of scholarship support per scholar =	2

Name of degree on diploma awarded to Scholars:
Name #1 - Associate Degree for Transfer, Chemistry

NAME: Silvana McCormick (formally Silvana Bialosiewicz)

POSITION TITLE & INSTITUTION: Executive Director, Redwood Consulting Collective

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
Sonoma State University	Rohnert Park, CA	Psychology & Applied Statistics	Bachelor of Arts	2010
Claremont Graduate University	Claremont, CA	Psychology- Program Evaluation & Applied Research Methods	Master of Arts	2013
Claremont Graduate University	Claremont, CA	Psychology- Program Evaluation & Applied Research Methods	PhD	2017

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
2016-Present	Executive Director, Redwood Consulting Collective, Santa Rosa CA
2015-2016	Program Evaluator, California State University, San Bernardino, San Bernardino, CA
2013-2016	Research & Evaluation Lab Manager, Claremont Graduate University, Claremont, CA
2013-2016	Senior Research Associate & Project Manager Claremont Graduate University, Claremont, CA
2014-2014	Instructor, Claremont Graduate University, Claremont, CA
2014-2014	Consultant, California Afterschool Network & CA Department of Education
2014-2014	Consultant, Partnership for Children & Youth, Oakland CA
2013-2013	Research Associate, Public Profit, Oakland CA
2011-2013	Research Associate, Claremont Graduate University, Claremont, CA

C. PRODUCTS

(see PAPPG Chapter II.C.2.f.(i)(c))

Products Most Closely Related to the Proposed Project

McCormick, S. (2020). C5 Program (Catalzying Computing & Cybersecurity in Community Collleges) Year Five Evaluation Report. Whatcom Community College, Whatcom, WA.
McCormick S. & Rottapel, M. (2019) C3P Program (Community College Cyber Pilot Scholarship-for-Service) Year One Formative Evaluation Report. Whatcom Community College, Whatcom, WA.
McCormick, S. & Rottapel, M. (2019). ISSUES-X Project (Investigating Student Success Using Evidence-Based Strategies Expanded) 2018-2019 Evaluation Report. California State University, San Bernardino, CA.
McCormick, S. & Rottapel, M. (2018). Noyce Scholars Program, 2017-2018 Summative Evaluation Report. California State University, San Bernardino, CA.
McCormick, S. & Rottapel, M. (2018). Noyce Fellowship Program, 2017-2018 Evaluation Report. California State University, San Bernardino, CA.

Other Significant Products, Whether or Not Related to the Proposed Project

McCormick, S. & Manta-Myer, J. (manuscript in preperation). A Guidebook for Continuous Quality Improvement in Expanded Learning Programs. California AfterSchool Network and the California Department of Education. Sacremento, CA.
McCormick. S. (2017). Moving the Needle on Program Quality: An Examination of the Organizational Characteristics that Drive Improvement in Expanded Learning Programs. Doctoral Dissertation, Claremont Graduate University.
Bialosiewicz, S. & Berry, T. (2015). What is Good Work? Youth-Program Evaluator Perspectives on High Quality Practice. Paper presented for a Presidential Strand Session at the Annual Conference of the American Evaluation Association, Chicago, IL.
Kumar, S., Mayo, T., Sommer, H., Carlsson, J., & Bialosiewicz, S. (2014). The building intentional communities program: Creating engaged, critical thinkers in out-of-school-time. Journal of Extended Learning Opportunities, 1, 8-17.

D. SYNERGISTIC ACTIVITIES

(see PAPPG Chapter II.C.2.f.(i)(d))

As the Executive Director and Senior Project Manager of Redwood Consulting Collecting (2016-present), Dr. McCormick has designed and implemented evaluations of many multi-year, NSF-funded educational programs in Higher Educational settings. These include the Proactive Recruitment in Introductory Science and Mathematics (PRISM) program, the Robert Noyce Teacher Scholarship Program, the Improving Undergraduate STEM Education (IUSE) program, the Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) program, and the Community College Cyber Pilot (C3P) program.

As an Evaluation Consultant for CSUSB〈s College of Natural Sciences (2016), Dr. McCormick provided one-on-one evaluation support for STEM faculty that had participated in an institute on EBTPs in STEM education and were piloting these strategies in their courses. This support included consulting meetings, the development of evaluation plans, measure development, data analysis, and a summary of formative findings. These services provided faculty with an opportunity to collect rigorous data on the

NAME: Molly Rottapel

POSITION TITLE & INSTITUTION: Executive Director, Redwood Consulting Collective, Inc.

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
University of Guelph	Guelph, Ont, Canada	Psychology	Bachelors of Arts	2008
Claremont Graduate University	Claremont, CA	Organizational Behavior & Program Evaluation	Masters of Arts	2012
Claremont Graduate University	Claremont, CA	Organizational Behavior	Ph.D.	2017

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
2016 - present	Executive Director, Redwood Consulting Collective, Los Angeles, CA
2015-2016	Assistant for Research, Executive Corporate Learning Forum, Los Angeles, CA
2015	Associate Consultant, AMGEN, Woodland Hills, CA
2015	Program Evaluator, Kravis Leadership Institute, Claremont, CA
2014	Employee Engagement Consultant, DIRECTV, Los Angeles CA
2014	Associate Consultant, Sagatica, Executive & Leadership Development Firm, San Diego, CA
2013-2014	Qualitative Program Evaluator, Healthy Rancho Cucamonga, Dining Program, Rancho Cucamonga, CA
2012	Evaluation Consultant, Cancer Legal Resource Center, Los Angeles, CA
2011-2016	Research & Teaching Assistant

C. PRODUCTS

(see PAPPG Chapter II.C.2.f.(i)(c))

Products Most Closely Related to the Proposed Project

McCormick, S. & Rottapel, M. (2020). ISSUES-X Project (Investigating Student Success Using Evidence-Based Strategies Expanded) 2019-2020 Evaluation Report. California State University, San Bernardino, CA.
McCormick S. & Rottapel, M. (2020) C3P Program (Community College Cyber Pilot Scholarship-for-Service) Year Two Formative Evaluation Report. Whatcom Community College, Whatcom, WA.
McCormick, S. Rottapel, M (2020). Diversity & Equity in Promotion, Tenure, & Hiring (DEPTH) Evaluation Report for California State University, San Bernardino. Redwood Consulting Collective, Inc. Santa Rosa CA.
McCormick, S. Rottapel, M. Coleman, M (2020) Math & Science Scholars for the Inland Empire, Phase III Evaluation Report for Report for California State University, San Bernardino. Redwood Consulting Collective, Inc. Santa Rosa CA.
McCormick, S. & Rottapel, M. (2018). Noyce Scholars Program, 2017-2018 Summative Evaluation Report. California State University, San Bernardino, CA.
McCormick, S. & Rottapel, M. (2018). Noyce Fellowship Program, 2017-2018 Evaluation Report. California State University, San Bernardino, CA.

Other Significant Products, Whether or Not Related to the Proposed Project

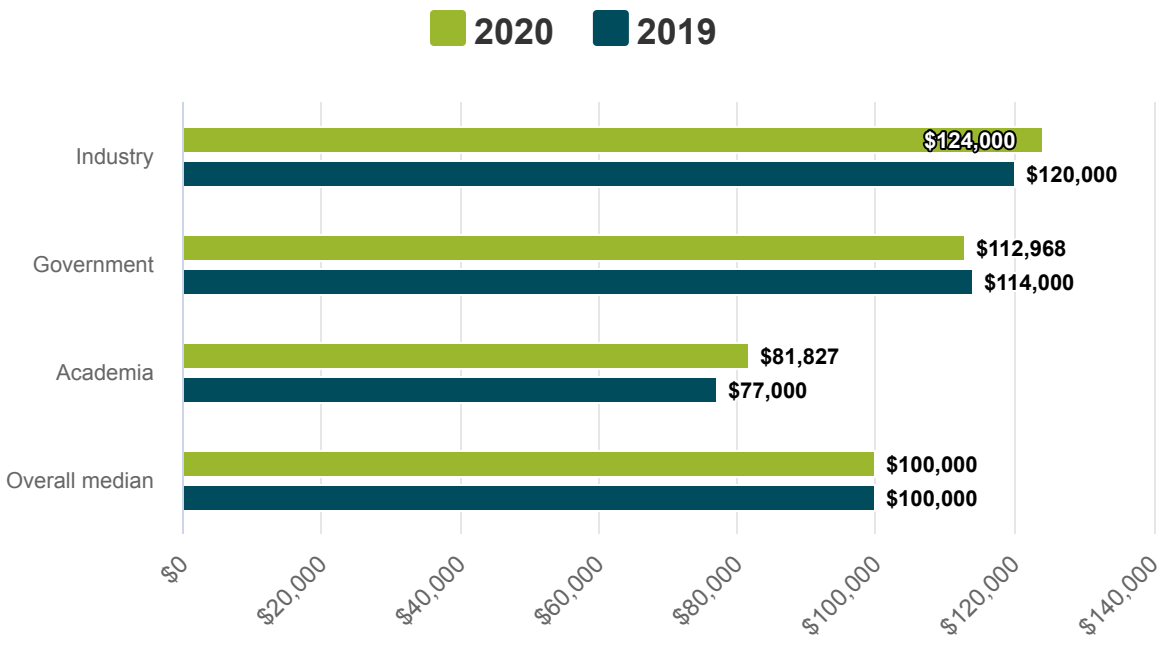
Rottapel, M. C. (2017). Pardon the interruption: An examination of the antecedents and outcomes of multitasking in the workplace. Doctoral Dissertation: Claremont Graduate University.

D. SYNERGISTIC ACTIVITIES

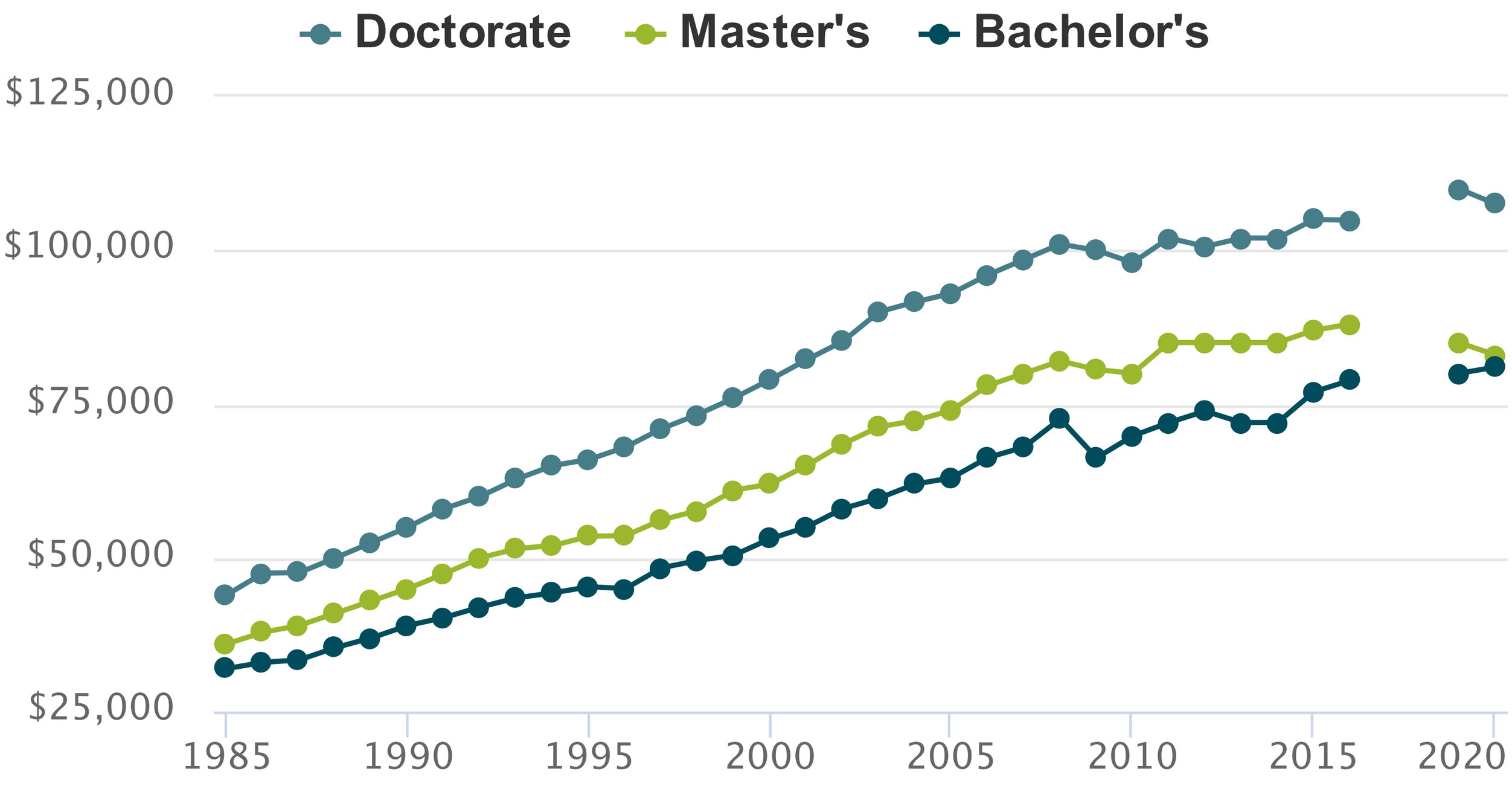
(see PAPPG Chapter II.C.2.f.(i)(d))

As the Executive Director and Senior Project Manager of Redwood Consulting Collecting (2016-present), Dr. Rottapel has designed and implemented evaluations of many multi-year, NSF-funded educational programs in Higher Educational settings. These include the Robert Noyce Teacher Scholarship Program, the Improving Undergraduate STEM Education (IUSE) program, the Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) program, and the Community College Cyber Pilot (C3P) program.

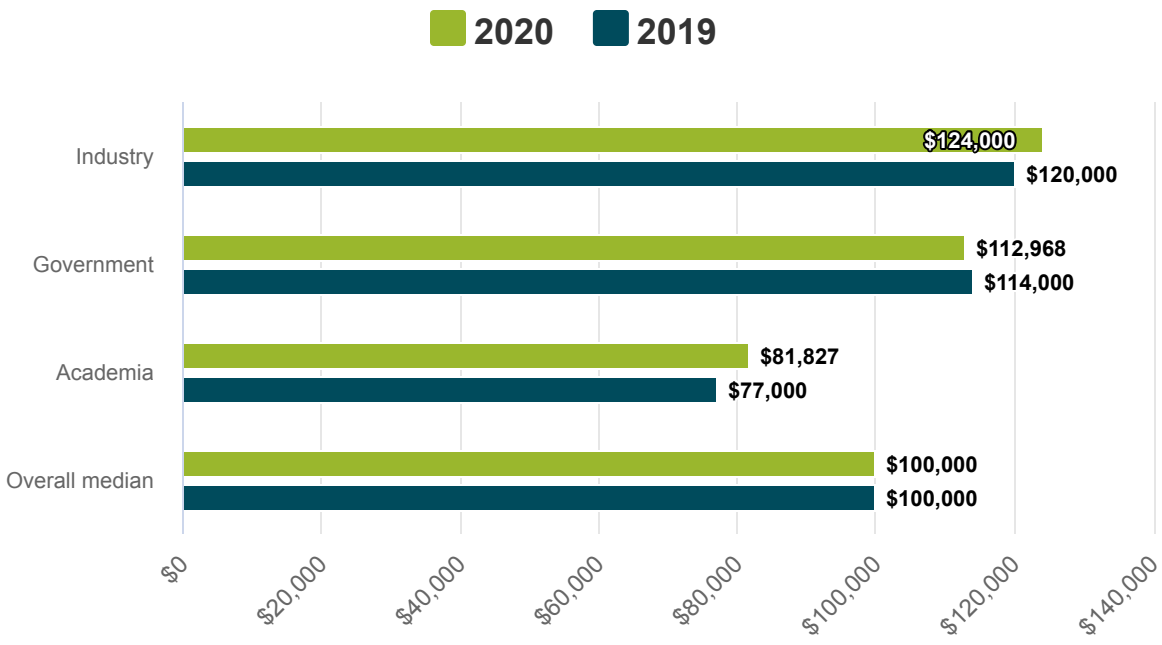
Overall salaries were flat compared with 2019



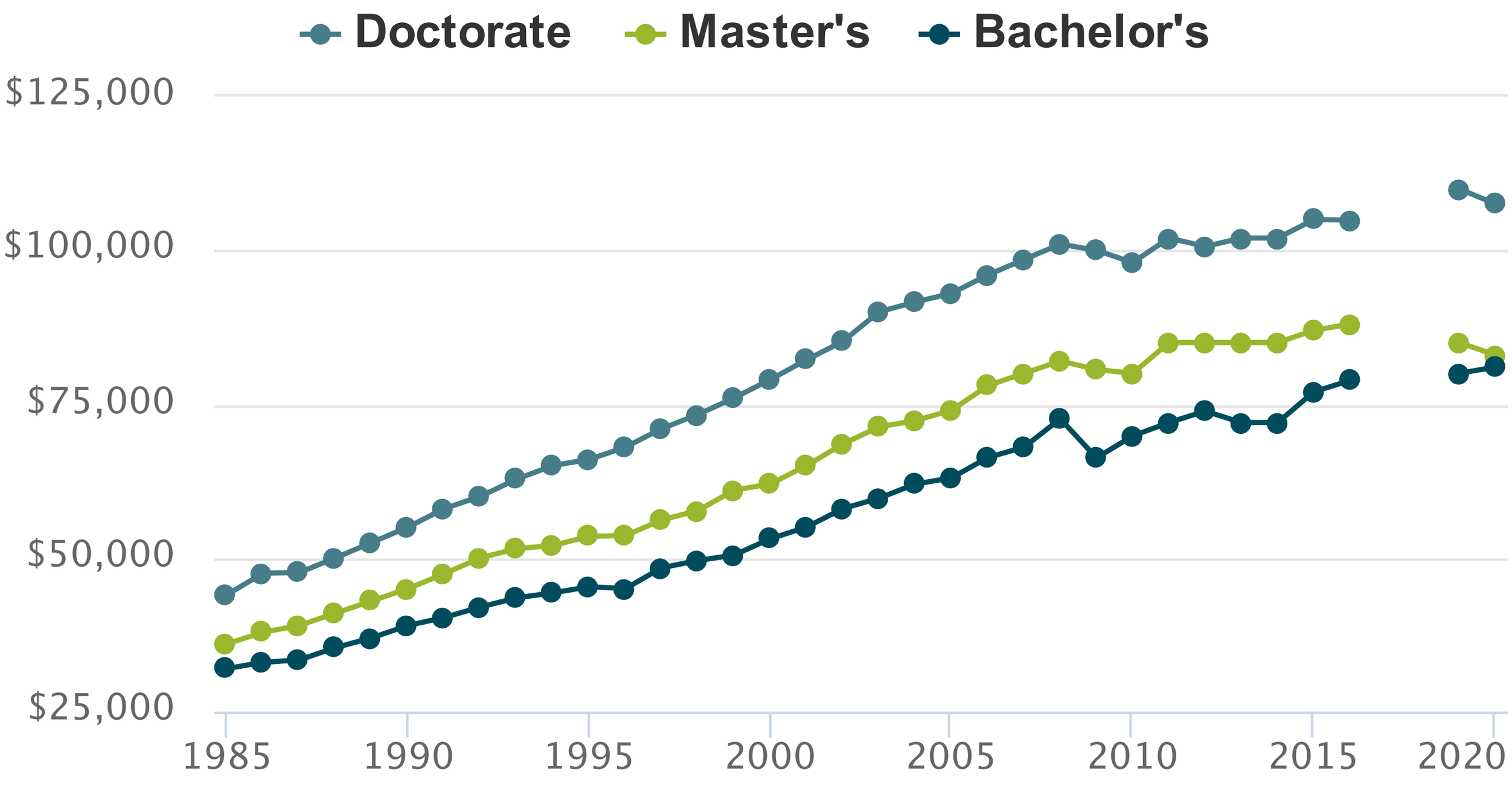
Salaries have increased since 1985 when viewed in current dollars



Overall salaries were flat compared with 2019



Salaries have increased since 1985 when viewed in current dollars



List of Suggested Reviewers or Reviewers Not To Include (optional)

SUGGESTED REVIEWERS:
Not Listed

REVIEWERS NOT TO INCLUDE:
Not Listed

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

If there are more than 10 individuals designated as senior project personnel on the proposal, or if there are print preview issues, each completed template must be saved as a .txt file [select the Text (Tab Delimited) option] rather than as an .xlsx or .xls file. This format will still enable preservation of searchable text and avoid delays in processing and review of the proposal. Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

COA template Table 1:
List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

COA template Table 2:
List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

COA template Table 3:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **The individual's Ph.D. advisors; and**
- **All of the individual's Ph.D. thesis advisees.**

COA template Table 4:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**
- **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

COA template Table 5:
List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.
- **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**
- **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.
2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional)
Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and
To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.
You may fill-down (crtl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting.
For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.
"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

Table 1: List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Virgil J. Lee	Norco College	Present

Table 2: List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

to disambiguate common names

2	Name:	Organizational Affiliation	Optional (email, Department)	Last Active

Table 3: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and
T: All of the individual's Ph.D. thesis advisees.

to disambiguate common names

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
	Professor James Collman	Stanford University	unknown (retired)

Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**

C: **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

to disambiguate common names

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active

Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief

B: **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**

E: **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

to disambiguate common names

5	Name:	Organizational Affiliation	Journal/Collection	Last Active

The following information regarding collaborators and other affiliations (COA) must be separately provided for each individual identified as senior project personnel. The COA information must be provided through use of this COA template.

Please complete this template (e.g., Excel, Google Sheets, LibreOffice), save as .xlsx or .xls, and upload directly as a Fastlane Collaborators and Other Affiliations single copy doc. Do not upload .pdf.

If there are more than 10 individuals designated as senior project personnel on the proposal, or if there are print preview issues, each completed template must be saved as a .txt file [select the Text (Tab Delimited) option] rather than as an .xlsx or .xls file. This format will still enable preservation of searchable text and avoid delays in processing and review of the proposal. Please note that some information requested in prior versions of the PAPPG is no longer requested. THIS IS PURPOSEFUL AND WE NO LONGER REQUIRE THIS INFORMATION TO BE REPORTED. Certain relationships will be reported in other sections (i.e., the names of postdoctoral scholar sponsors should not be reported, however if the individual collaborated on research with their postdoctoral scholar sponsor, then they would be reported as a collaborator). The information in the tables is not required to be sorted, alphabetically or otherwise.

There are five separate categories of information which correspond to the five tables in the COA template:

COA template Table 1:
List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

COA template Table 2:
List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

COA template Table 3:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **The individual's Ph.D. advisors; and**
- **All of the individual's Ph.D. thesis advisees.**

COA template Table 4:
List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:
- **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**
- **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

COA template Table 5:
List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief must list the entire editorial board.
- **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**
- **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

The template has been developed to be fillable, however, the content and format requirements must not be altered by the user. This template must be saved in .xlsx or .xls format, and directly uploaded into FastLane as a Collaborators and Other Affiliations Single Copy Document. Using the .xlsx or .xls format will enable preservation of searchable text that otherwise would be lost. It is therefore imperative that this document be uploaded in .xlsx or .xls only. Uploading a document in any format other than .xlsx or .xls may delay the timely processing and review of the proposal.

This information is used to manage reviewer selection. See Exhibit II-2 for additional information on potential reviewer conflicts.

1 Note that graduate advisors are no longer required to be reported.
2 Editorial Board does not include Editorial Advisory Board, International Advisory Board, Scientific Editorial Board, or any other subcategory of Editorial Board. It is limited to those individuals who perform editing duties or manage the editing process (i.e., editor in chief).

List names as Last Name, First Name, Middle Initial. Additionally, provide email, organization, and department (optional)
Fixed column widths keep this sheet one page wide; if you cut and paste text, set font size at 10pt or smaller, and
To insert *n* blank rows, select *n* row numbers to move down, right click, and choose Insert from the menu.
You may fill-down (crtl-D) to mark a sequence of collaborators, or copy affiliations. Excel has arrows that enable sorting.
For "Last Active Date" and "Last Active" columns dates are optional, but will help NSF staff easily determine which information remains relevant for reviewer selection.
"Last Active Date" and "Last Active" columns may be left blank for ongoing or current affiliations.

Table 1: List the individual's last name, first name, middle initial, and organizational affiliation (including considered affiliation) in the last 12 months.

1	Your Name:	Your Organizational Affiliation(s), last 12 r	Last Active Date
	Lugo, Christopher A.	Norco College	Present

Table 2: List names as last name, first name, middle initial, for whom a personal, family, or business relationship would otherwise preclude their service as a reviewer.

R: Additional names for whom some relationship would otherwise preclude their service as a reviewer.

to disambiguate common names

2	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
	N/A			

Table 3: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following.

G: The individual's Ph.D. advisors; and
T: All of the individual's Ph.D. thesis advisees.

to disambiguate common names

3	Advisor/Advisee Name:	Organizational Affiliation	Optional (email, Department)
	Vincent LaVallo	University of California, Riverside	

Table 4: List names as last name, first name, middle initial, and provide organizational affiliations, if known, for the following:

A: **Co-authors on any book, article, report, abstract or paper with collaboration in the last 48 months (publication date may be later); and**

C: **Collaborators on projects, such as funded grants, graduate research or others in the last 48 months.**

to disambiguate common names

4	Name:	Organizational Affiliation	Optional (email, Department)	Last Active
	J. F. Kleinsasser	University of California, Riverside		2018
	S. E. Lee	University of California, Riverside		2018
	V. Tej	University of California, Riverside		2018
	S. G. McArthur	University of California, Riverside		2018
	V. Lavallo	University of California, Riverside		2018

Table 5: List editorial board, editor-in chief and co-editors with whom the individual interacts. An editor-in-chief

B: **Editorial Board: List name(s) of editor-in-chief and journal in the past 24 months; and**

E: **Other co-Editors of journal or collections with whom the individual has directly interacted in the last 24 months.**

to disambiguate common names

5	Name:	Organizational Affiliation	Journal/Collection	Last Active
	N/A			

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./DUE DATE	☐ Special Exception to Deadline Date Policy	FOR NSF USE ONLY
NSF 21-550 04/07/21		NSF PROPOSAL NUMBER **2130404**
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)		
DUE - S-STEM Track 2: Design & Dev-(Single Institution)		

DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION
04/07/2021	1	11040000 DUE	1536	110253833	04/07/2021 4:06pm

EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)	SHOW PREVIOUS AWARD NO. IF THIS IS ☐ A RENEWAL ☐ AN ACCOMPLISHMENT-BASED RENEWAL	IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☐ IF YES, LIST ACRONYM(S)
330831357		

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE	ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE
Riverside Community College District/Norco Campus	Riverside Community College District/Norco Campus 2001 Third Street Norco,CA.928602600
AWARDEE ORGANIZATION CODE (IF KNOWN) 7203576475	
NAME OF PRIMARY PLACE OF PERF	ADDRESS OF PRIMARY PLACE OF PERF, INCLUDING 9 DIGIT ZIP CODE
Riverside Community College District/Norco Campus	Riverside Community College District/Norco Campus CA ,928602660 ,US.

IS AWARDEE ORGANIZATION (Check All That Apply) ☐ SMALL BUSINESS ☐ MINORITY BUSINESS ☐ FOR-PROFIT ORGANIZATION ☐ WOMAN-OWNED BUSINESS ☐ IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE

TITLE OF PROPOSED PROJECT: Accelerating Chemistry Engagement & Success (ACES)

REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE
$ 1,499,723	72 months	07/01/22	

THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW

- ☐ BEGINNING INVESTIGATOR
- ☐ DISCLOSURE OF LOBBYING ACTIVITIES
- ☐ PROPRIETARY & PRIVILEGED INFORMATION
- ☐ HISTORIC PLACES
- ☐ VERTEBRATE ANIMALS IACUC App. Date _____
  PHS Animal Welfare Assurance Number _____
- ☒ TYPE OF PROPOSAL: Research
- ☒ HUMAN SUBJECTS Human Subjects Assurance Number _____
  Exemption Subsection 101(2)(b)1 or IRB App. Date Pending
- ☐ FUNDING OF INT'L BRANCH CAMPUS OF U.S IHE ☐ FUNDING OF FOREIGN ORG
- ☐ INTERNATIONAL ACTIVITIES: COUNTRY/COUNTRIES INVOLVED
- ☒ COLLABORATIVE STATUS: Not a collaborative proposal

PI/PD DEPARTMENT	PI/PD POSTAL ADDRESS
Science and Kinesiology	2001 Third Street Norco,CA 928602800 United States
PI/PD FAX NUMBER	

NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Email Address
PI/PD NAME Virgil Lee	PhD	1992	951-738-7770	virgil.lee@norcocollege.edu
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				
CO-PI/PD				

CERTIFICATION PAGE

Certification for Authorized Organizational Representative (or Equivalent)

By electronically signing and submitting this proposal, the Authorized Organizational Representative (AOR) is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding conflict of interest (when applicable), flood hazard insurance (when applicable), responsible conduct of research and organizational support as set forth in the NSF Proposal & Award Policies & Procedures Guide (PAPPG). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U.S. Code, Title 18, Section 1001).

Certification Regarding Conflict of Interest

The AOR is required to complete certifications stating that the organization has implemented and is enforcing a written policy on conflicts of interest (COI), consistent with the provisions of PAPPG Chapter IX.A.; that, to the best of his/her knowledge, all financial disclosures required by the conflict of interest policy were made; and that conflicts of interest, if any, were, or prior to the organization's expenditure of any funds under the award, will be, satisfactorily managed, reduced or eliminated in accordance with the organization's conflict of interest policy. Conflicts that cannot be satisfactorily managed, reduced or eliminated and research that proceeds without the imposition of conditions or restrictions when a conflict of interest exists, must be disclosed to NSF via use of the Notifications and Requests Module in FastLane.

Certification Regarding Flood Hazard Insurance

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

(1) community in which that area is located participates in the national flood insurance program; and
(2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

(1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
(2) for other NSF grants when more than $25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

Certification Regarding Responsible Conduct of Research (RCR)

(This certification is not applicable to proposals for conferences, symposia, and workshops.)

By electronically signing the Certification Pages, the Authorized Organizational Representative is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Chapter IX.B. , the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research. The AOR shall require that the language of this certification be included in any award documents for all subawards at all tiers.

Certification Regarding Organizational Support

By electronically signing the Certification Pages, the Authorized Organizational Representative (or equivalent) is certifying that there is organizational support for the proposal as required by Section 526 of the America COMPETES Reauthorization Act of 2010. This support extends to the portion of the proposal developed to satisfy the Broader Impacts Review Criterion as well as the Intellectual Merit Review Criterion, and any additional review criteria specified in the solicitation. Organizational support will be made available, as described in the proposal, in order to address the broader impacts and intellectual merit activities to be undertaken.

Certification Regarding Dual Use Research of Concern

By electronically signing the certification pages, the Authorized Organizational Representative is certifying that the organization will be or is in compliance with all aspects of the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME **Monica Green**	**Electronic Signature**	**Apr 7 2021 4:05PM**

TELEPHONE NUMBER	EMAIL ADDRESS	FAX NUMBER
951-372-7015	**monica.green@norcocollege.edu**	

NATIONAL SCIENCE FOUNDATION
Division of Undergraduate Education

NSF FORM 1295: PROJECT DATA FORM

The instructions and codes to be used in completing this form are provided in Appendix II.

1. **Program-track** to which the Proposal is submitted: **S-STEM Track 2: Design & Dev-(Single Institution)**
2. Name of **Principal Investigator/Project Director** (as shown on the Cover Sheet):
   Lee, Virgil
3. Name of submitting **Institution** (as shown on Cover Sheet):
   Riverside Community College District/Norco Campus
4. **Other Institutions** involved in the project's operation:

Project Data:

A. Major Discipline Code: **12**
B. Academic Focus Level of Project: **LO**
C. Highest Degree Code: **A**
D. Category Code: ___
E. Business/Industry Participation Code: **NA**
F. Audience Code: **M**_ _ _ _ _ _ _
G. Institution Code: **PUBL**
H. Strategic Area Code: _____
I. Project Features: **1 2 4 5 8**

Estimated number in each of the following categories to be directly affected by the activities of the project during its operation:

J. Undergraduate Students: **72**
K. Pre-College (PreK-12) Students: **0**
L. College Faculty: **5**
M. Pre-College (PreK-12) Teachers: **0**
N. Graduate Students: **0**
O. Postdoctoral Fellows: **0**

NSF Form 1295 (10/98)

PROJECT SUMMARY

Overview:

Norco College's Accelerating Chemistry Engagement & Success (ACES) six-year project will provide targeted recruitment of academically talented, but low-income and/or underrepresented students into chemistry transfer pathways. Norco College will provide unique, high impact, and comprehensive interventions to increase low-income and underrepresented students' retention rates and academic performance in chemistry. This project will also dramatically reduce time for these students to transfer into baccalaureate programs in chemistry. ACES is built upon thorough institutional assessment and leverages many current evidence-based initiatives at Norco College. These include the Completion Initiative, Guided Pathways, the Promise Program, and STEM Pathways.

ACES will recruit 75 academically talented, low-income students with unmet financial need, from diverse backgrounds into a chemistry pathway where they will be able to earn an associate's degree with transfer, or transfer to a baccalaureate institution. ACES will provide these students with scholarships and evidence-based curricular and co-curricular student supports, resulting in successful completion of coursework, retention, and transfer within two years. ACES will implement and investigate the impacts of these supports on building science identity and efficacy beliefs through mentorship, career-based experiential learning, and additional innovative practices, with the end goal of markedly reducing time to graduation and transfer into four-year science programs. With ACES funding, Norco College expects to meet the following objectives:

1. Develop underrepresented minority and low-income students' feelings of belongingness in STEM.
2. Enable ACES scholars to complete the chemistry pathway and transfer to a baccalaureate program in two years.
3. Foster underrepresented minority and low-income students' STEM identity.
4. Contribute to the body of knowledge regarding evidence-based practices that improve the recruitment, retention, and success of academically talented, low-income STEM students.

Intellectual Merit:

The knowledge generating component of our project will focus carefully on understanding how various aspects of ACES scholars' experiences help to foster transfer mindset and builds their STEM efficacy. This research will contribute significantly to the growing body of literature about promising practices in the recruitment, retention, success, and completion, as well as science identity formation among underrepresented student populations and the effect on academic performance and persistence in STEM.

Broader Impacts:

Riverside County, where Norco College is located, has among the lowest educational attainment rates with less than 25% of residents holding an associate degree or higher. Research on social economic mobility states that over their lifetime, students who graduate with just an associate's degree will earn less than half that of those attaining a bachelor's degree. There has been much research and debate on the exponential increase in college debt and its impact on low-income students seeking a bachelor's degree, as well as on those who continue to struggle with debt long after graduation. ACES will study the impact of providing low-income and underrepresented minority students with financial and comprehensive academic and personal supports, in conjunction with social integration at both the community college and university levels, providing critical information to state and national discussions regarding ways to decrease college debt while increasing STEM bachelor's degree attainment for low- income and traditionally underrepresented minorities.

TABLE OF CONTENTS

For font size and page formatting specifications, see PAPPG section II.B.2.

	Total No. of Pages	Page No.* (Optional)*
Cover Sheet for Proposal to the National Science Foundation		
Project Summary (not to exceed 1 page)	1	
Table of Contents	1	
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) **(Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**	15	
References Cited	2	
Biographical Sketches (Not to exceed 2 pages each)	4	
Budget (Plus up to 3 pages of budget justification)	9	
Current and Pending Support	30	
Facilities, Equipment and Other Resources	3	
Special Information/Supplementary Documents (Data Management Plan, Mentoring Plan and Other Supplementary Documents)	7	
Appendix (List below.) **(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)**		
Appendix Items:		

*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

PROJECT DESCRIPTION

a. Results from Prior NSF Support

Norco College (NC) has not previously received S-STEM or STEP funding.

b. Activities and Infrastructure on Which the Current Project Builds

The NC Accelerating Chemistry Engagement & Success (ACES) Program builds upon institutional initiatives and is grounded in data-based needs assessments, as well as evidence-based literature on best practices to support STEM achievement for underrepresented and low-income students. The following four institutional initiatives serve to increase student success, decrease student time to completion, and reduce the cost of education: The Completion Initiative, Guided Pathways, the Norco College Promise Program, and STEM Pathways. Norco College developed these programs in response to success, persistence, retention, and completion data that indicated a very small percentage of students were actually completing their educational goals in four years. Students traditionally underrepresented in higher education, including low- income, African-American (particularly African-American males), Latinx, part-time students, and older students were the lowest performing across all metrics.

The Completion Initiative. Based on research from the 2015 Aspen Prize for Community College Excellence, the Game Changers (produced by Complete College America), Completion by Design's "Loss and Momentum Framework," the work done by the Research and Planning Group for California Community Colleges (which focuses on factors that contribute to student achievement), as well as its own completion data, Norco College designed a holistic Completion Initiative comprised of five interconnected components, each of which addressed institutional barriers to completion. The five components included: (1) establishing "Schools" on campus; (2) creating educational Pathways; (3) increasing faculty participation in mentorship and advising; (4) linking college to career; and (5) using intentional methods of supporting student success and completion.

Guided Pathways. In 2017, NC was chosen as one of 20 California community colleges to participate in the California Guided Pathways project. Guided Pathways is an evidence-based project that creates a highly structured approach to student success and provides all students with a set of clear course-taking patterns to promote better enrollment decisions and prepare students for future success. Guided Pathways consists of four essential principles: (1) creating clear course pathways linked to majors and careers; (2) designing intake processes that ask students about their interests and goals and help them choose a program of study; (3) supporting student progress along their path with advising and academic services and ensuring learning by creating clear outcomes and measures for programs of study; and (4) establishing regular procedures to assess student achievement. NC's Guided Pathways model is unique due to its integrated support system. All pathways have dedicated counselors that advise students on courses, majors, and relevant careers. Each cluster also has a dedicated educational advisor to make sure students are going to individualized tutoring and career counseling, as needed. Faculty advisors provide discipline-specific advising, and peer mentors provide critical social-emotional support and academic guidance.

The Norco College Promise Program. The Norco College Promise Program is designed to help first-time college students complete their educational goal(s) in a timely manner. Students who commit to the Promise Program at Norco College receive financial support during their first year to reduce college costs and increase their success and retention. To be eligible for the Promise Program, students must be a first-time college student, must enroll in at least 12 units (full-time) in Fall and Spring semesters, maintain a 2.0 GPA, and either be a California resident or California College Promise Grant-eligible. There are no income requirements to join this program. The Promise Program pays for student enrollment costs as well as service fees, health fees, and transportation fees. NC's ACES will leverage the Promise Program for recruitment and outreach purposes as well as additional financial support for students.

STEM Pathways. STEM Pathways at NC includes two programs designed for students pursuing degrees in Engineering. The first program, *STEM Engineering Pathways Program* at NC, supports students pursuing majors and careers in Engineering. Students accepted into the STEM Engineering

Pathways program will meet with a counselor twice per year who: (1) provides academic, career and transfer guidance; (2) works with students to develop an educational plan that encourages completion of an associates of science degree and transfer to a four-year university in any field of engineering; (3) offers assistance with the transfer application process and transition from NC to the four-year universities. Students in the STEM Engineering Pathways program also receive support from the STEM Engineering Pathways Student Success Coach who monitors student academic progress and develops an individual access plan to help students overcome any obstacles affecting their academic progress. This program also provides internship, research, scholarship and field trip opportunities for students. The second program, *UC Riverside Bourns College of Engineering Transfer Pathway* provides guaranteed transfer for NC students who meet the University of California, Riverside's (UCR) minimum requirements for acceptance. The pathway between NC and the UCR's Bourns College of Engineering was formalized through establishing a Transfer Admission Guarantee for the following majors: bioengineering, chemical engineering, computer engineering, electrical engineering, environmental engineering, materials science and engineering, and mechanical engineering.

Evidence-Based Practices Adapted for ACES

Research suggests that persistence in college is related to a student's ability to build academic and social connections within their institution[1,2,3]. If a student fails to develop these connections, it can result in feelings of isolation, loneliness, and low social status, which harms students' subjective well-being, academic achievement, and even immune function and health[4]. In order to achieve the feeling of belongingness, students need to engage in successful interactions with peers and faculty to gain access to relevant college information, study sessions, group activities, group projects, and classroom presentations. Establishing social relationships helps students feel comfortable in college and provides them with access to information that can ease their path as they transition from high school and pursue a degree. Students, especially those from low-income, disadvantaged, at-risk backgrounds, are highly likely to benefit from structured, frequent and mandated guidance coupled with close progress monitoring[5]. As such, NC's ACES will implement a learning community/cohort model, with numerous support services, including faculty and peer mentorship as well as curricular and co-curricular activities, to build NC's ACES learning community. By providing ACES scholars with wrap-around, integrated support services that target both academic and non-academic barriers to success, NC will ensure ACES scholars develop a sense of belonging and achieve desired academic outcomes.

Summer bridge program has demonstrated success in strengthening academic and college readiness by exposing students to college-level coursework, which improves early academic performance[6]. This is critical because research shows that the majority of academic gains occur during the first two years of college [7,8]. Academic outcomes from summer bridge programs include higher passing rates in college courses, increased credits earned, greater likelihood of attempting higher-level math and reading courses in the future, and higher retention rates [9,10,11]. Summer bridge programs are especially beneficial for students from racial and ethnic groups underrepresented in higher education, first-generation students, and low-income students [12,13,14,15]. Other positive outcomes, including increases in academic self-efficacy, greater confidence about college expectations, and a higher sense of belonging [16,17] have been found in students who attend summer bridge programs. ACES scholars will begin their journey at NC in a summer bridge program consisting of an Introduction to Chemistry workshop and an Introduction to College course.

Lack of support and engagement at transfer institutions is also a major issue for underrepresented, low-income, and first-generation students. Traditionally, most four-year institutions provide far less attention and support to transfer students than to students that started at the university as freshmen. In their study, Roberts and McNeese (2010) found substantial disparities in student involvement and engagement simply based on whether a student began their education at that university or transferred from a community college [18]. Through NC's existing partnerships with La Sierra University and the University of California, Riverside, NC's ACES scholars will have several required and optional opportunities for pre- and post-transfer support programming at both institutions.

Recent research also shows that creating and sustaining underrepresented students' science identity is critically important to their success. Several studies have demonstrated that: (1) African-American science majors and scientists must find ways to manage the alignment of their cultural identity with their identity as a scientist- in fact, their ability to do so is a strong predictor of engagement and their experience of microaggressions [19]; (2) research career intentions are directly and positively associated with self-efficacy and outcome expectancies among diverse STEM undergraduates [20]; (3) when Latinx high school students are engaged in meaningful laboratory investigations and inquiry activities, and when culturally responsive instruction is used, they are more likely to develop a science-literate identity [21]; (4) gender, race/ethnicity, and competence beliefs developed in the first year of college significantly predict science identity development trajectory and later science participation, with those having the highest initial beliefs significantly more likely to be in science careers after college graduation.[22]

The aforementioned studies show that educational institutions and programs are responsible for creating environments in which diverse students can fully participate in the community of science. The presence of effective mentorship within educational and co-curricular support systems is one of the most important factors in the development of science identity that will be adapted for ACES. Faculty and peer mentors are important agents of socialization through which emerging ACES scientists will be introduced and oriented to the educational pathways and what students can do with a baccalaureate degree in chemistry. The chemistry faculty mentors and peer mentors will share their experiences as STEM students and scientists. Doing so will help ACES scholars build a sense of STEM identity and feel more self-confident and capable as they begin their own educational journey and career exploration.[23.] NC designed numerous professional development opportunities in which ACES scholars can experience their emerging science identity.

c. <u>Project Significance, Objectives and Rationale</u>

Project Significance

Without proper academic guidance and advising, students—particularly first-generation college students—often take unnecessary classes and/or classes that are not accepted by their transfer institutions (in this case, La Sierra University or the University of California). On average, NC students leave the college with 85 units, rather than the 60 credits required to transfer to a baccalaureate program. Students at NC, already economically disadvantaged and pressed for time, cannot afford to make these kinds of mistakes, which cost them dearly in terms of time to degree, associated expenses such as textbooks, tuition and fees, and ultimately delaying their entry into the workforce.

Among undergraduate students, underrepresented minority students are more likely to have undergraduate debt (49%) than their peers (41%), and have a slightly higher-than-average median amount borrowed. The majority of NC's students are Latinx and low-income. On average, 22.3% of NC students qualify for the California College Promise Grant tuition waiver due to financial need of their own or their parents/guardians. In fact, The Institute for College Access and Success (2019), an affordable education advocacy/research group, recently released alarming data that indicate that the total cost to attend California community colleges is more than other public postsecondary institutions in the state, including the University of California system. What College Costs for Low-Income Californians finds that low-income students and families actually pay less to attend the University of California and California State University campuses than they do to attend the California community colleges, because students who attend the universities receive more in financial aid and spend less living in university housing, a cost that can be supported with financial aid. However, research has also shown that many low-income, first generation college students are not comfortable in the traditional university setting and choose the community college route despite the higher cost. In an area with some of the highest poverty rates in the country, these costs are a hardship low-income, first generation college students cannot endure. Therefore, it is imperative that Norco College, as well as the California community college system in general, implement strategies to improve students' academic performance, reduce their time to graduation and/or transfer, and provide financial support.

Many students also encounter difficulty when attempting to transfer. This is another major barrier to bachelor's degree completion for students. NC believes that reducing structural barriers between two- and four-year colleges is necessary to increase STEM baccalaureate attainment rates[24]. This stems from a lack of sufficient community college infrastructure to facilitate transfer, as well as disjointed and confusing articulation agreements that negatively impact transfer rates. In STEM fields, distinguishing between prerequisite major courses and courses designed to build technical skills for non-STEM majors can also be very confusing to students due to course naming conventions and catalogue descriptions. NC will alleviate student confusion by establishing chemistry Transfer Admission Guarantees (TAGs) with the University of California, Riverside and La Sierra University. TAGs are established pathways that offer students from community college guaranteed admission to a specific university as long as students meet minimum requirements of the university's academic program. Another benefit of a TAG is that students receive early review of their academic records, early admission notification, and specific guidance about major preparation and general education coursework.

Project Objectives

Norco College's ACES program will provide scholarship support in conjunction with intensive student supports and opportunities for scholarship recipients to engage in active, collaborative learning outside the classroom and with other ACES scholars. By providing a combination of comprehensive student support services and scholarships, this program will increase the number of low-income community college students who successfully complete their studies and transfer to a baccalaureate program in Chemistry. The objectives for the ACES project are to:

1. Develop feelings of belongingness in STEM among low-income students traditionally underrepresented in STEM and postsecondary education
2. Enable ACES scholars to complete the chemistry pathway and transfer to a baccalaureate program in two years.
3. Foster underrepresented and low-income students' STEM identity.
4. Contribute to the body of knowledge regarding evidence-based practices that improve the recruitment, retention, and success of academically talented, low-income STEM students.

Project Rationale

Rationale for Comprehensive Support Programs. The demographics of the students at NC who enroll in chemistry courses mirror those of the larger student body, with the majority group being Hispanic (56.8%), female (60.9%) and low income (31.3%). Slightly higher numbers of Asian (16.9%) students tend to enroll, with comparable representation among African-American (4.1%) and white (19.7%) students. However, while enrollment mirrors the larger student body, student success data does not.

In examining baseline retention and academic performance metrics, the need for the proposed ACES interventions is evident. Historically, NC has graduated only a handful of STEM majors in the discipline, though most students are retained Fall-to-Fall. A closer look reveals that only a small percentage of students actually enroll full-time with a sufficient course load to transfer in two years. The biggest attrition points, as seen in Table 1, below, occur within the first courses in the STEM sequence. However, attrition continues across the entire set of courses, resulting in a final group of students in the highest-level chemistry course taught that is less than a third of the size of the first course enrollment. NC's ACES will reduce gradual attrition through the intensive, high-impact support systems of the ACES program.

Table 1: Baseline Retention & Success

Metric	Number of Students	Completion (Number)	Completion (Rate)
Fall-to-Fall Retention	940	623	66.3%
30+ Units Earned in One Year	1,615	117	7.2%
60+ Units Earned in Two Years	1,615	113	7.0%

Graduate in Two Years	1,668	82	4.9%

Also, as seen in Table 2, below, student performance in the first, foundational courses in chemistry is problematic, with success rates (students earning a C or better, the required grade for prerequisites) hovering around 65%. These courses are required for nearly all STEM pathways. Unfortunately, the same pattern exists for required college-level math courses. These courses act as gatekeepers and are often taken by NC students multiple times, delaying their progress and creating additional financial and emotional burden. To improve course completion rates and support student success, NC faculty are working to strengthen the chemistry curriculum through the use of inquiry-based learning, culturally responsive pedagogy, and infusion of tasks to build number sense, targeting the gatekeeper courses.

Table 2: Baseline Chemistry Course Success (C or Better)

	2017-2018			2018-2019			2019-2020		
Course	**Enrolled**	**Success**	**Rate**	**Enrolled**	**Success**	**Rate**	**Enrolled**	**Success**	**Rate**
CHE-2A: Intro to Chemistry	702	445	63%	838	582	69%	915	628	69%
CHE-1A: General Chemistry I	160	106	66%	217	150	69%	234	154	66%
CHE-2A: General Chemistry II	121	78	64%	106	61	58%	123	91	74%
CHE 12A: Organic Chemistry I	37	25	68%	38	23	61%	42	23	55%
CHE-12B: Organic Chemistry II	10	9	90%	22	13	59%	20	18	90%

NC will provide ACES scholars with financial assistance and comprehensive high-impact curricular and co-curricular student supports, resulting in successful completion and transfer within two years. NC's ACES project will implement and investigate the impact of project activities to build science identity and efficacy beliefs through mentorship, experiential learning, and additional innovative practices. With these supports and activities, NC's goal is to greatly reduce students' time to completion and transfer into a baccalaureate university and major in STEM.

Rationale for Scholarship Size and Number of Scholars. NC is requesting a Track 2 grant, which will encourage retention and persistence among ACES scholars by allowing them to concentrate on their studies, reduce their need to work, and complete the program in two years. The ACES program will have five separate two-year cohorts: 10 students in Cohort One; 12 students in Cohort Two; 15 students in Cohort Three; 18 students in Cohort Four, and 20 students in Cohort Five (75 total participants). NC will build on the infrastructure of the program to offer more students the opportunity to become ACES scholars as the project progresses. Tables 3 and 4, to the right, indicate progressive award levels for each year of successful completion of studies. The maximum award amount for first year students is lower, with the expectation that some students may choose a different career path or may stop or drop out. The maximum award amount for students will increase in their second year, recognizing students for their persistence in a STEM field. The plan for distribution of scholarships is below, in Table 5.

Table 3: Scholarship Amount Year One

Summer	$500
Fall	$2,000
Winter	$500
Spring	$2,000
Total	$5,000

Table 4: Scholarship Amount Year Two

Summer	$500
Fall	$3,000
Winter	$500
Spring	$3,000
Total	$7,000

Table 5: Distribution of Scholarships

	Year 1- 2022-23	Year 2- 2023-24	Year 3- 2024-25	Year 4- 2025-26	Year 5- 2026-27	Year 6- 2027-28	Totals

Cohort 1 - 10	N=10; $5,000 EA	N=10; $7,000 EA					$12,000
Cohort 2 - 12		N=12; $5,000 EA	N=12; $7,000 EA				$12,000
Cohort 3 - 15			N=15; $5,000 EA	N=15; $7,000 EA			$12,000
Cohort 4 - 18				N=18; $5,000 EA	N=18; $7,000 EA		$12,000
Cohort 5 - 20					N=20; $5,000 EA	N=20; $7,000 EA	$12,000
Total: 75	**$50,000**	**$130,000**	**$159,000**	**$195,000**	**$226,000**	**$140,000**	**$900,000**
Participants Per Year	**10**	**22**	**27**	**33**	**38**	**20**	**75**

It is essential that NC provides ACES scholars with scholarships in an amount that would offset their need to be employed during the academic year. Almost 80% of NC students enroll part-time and the majority juggle earning an education with full- or part-time work. Having to work takes time away from students' ability to complete their education in a timely manner, thus increasing time to completion and entry into a baccalaureate program (and, ultimately, a STEM career). It is for this reason that all NC ACES scholars must be enrolled full-time (at least 12 units in Fall and Spring and 4-6 units in summer and winter). The scholarship amount offer equates to an amount that they would earn if working in a typical part-time, minimum wage occupation. Scholarship funds are also intended to prevent students from having to work during intersessions, providing them with the time to take part in critical activities to increase STEM identity through direct experiential learning and exposure to role models/mentors within a professional career context. To support this identity development, ACES scholars will have the opportunity to participate in research, an internship, or other relevant student activity during both winter and summer intersessions.

d. Pool of Potential Scholars and Determination of Scholarship Amount

Norco College proposes to award up to two years of scholarship support to 75 full-time, academically talented, low-income students with unmet financial need pursuing Chemistry degrees. ACES scholars will receive support for up to two years, as long as they meet minimum program requirements. Table 6, above, demonstrates the number of low-income students with unmet need that are currently registered in Chemistry courses. ***These same STEM students at NC have an average one-year retention rate of 55.8%, and a graduation rate of 29.0% in 4 years.***

Table 6: Number of Domestic Low-Income Students with Unmet Need Currently Registered

College	1st Year	2nd Year	3rd Year	4th Year	Other Years	Avg. GPA	Avg. Unmet Need
STEM	3,061	3,043	2,794	2,881	N/A	2.90	$11,769

Tuition at Norco College is relatively inexpensive with the cost per credit hour of $46 ($552/semester for full-time enrollment). However, the cost of living in the Inland Empire is substantially higher than in many other parts of the country. As such, while students may be able to afford tuition, they struggle to afford other basic needs, including housing and food, and must work, limiting the time they can allocate to their studies. The average cost of education for a full-time NC student for 2019-2020 is in Table 7, above.

Table 7: Cost of Attendance at Norco College 2019-2020

Costs	Living at Home	Living Away from Home
Books and Supplies	$1,972	$1,972
Room and Board	$6,786	$17,946
Transportation	$1,134	$1,278
Personal Expenses	$3,564	$3,996
Enrollment Fees	$1,380	$1,380
Health Fees	$40	$40
TOTAL	**$14,876**	**$26,612**

e. ACES Student Support and Programs

NC has designed a comprehensive program of curricular and co-curricular supports to ensure ACES scholars succeed in completion of their educational pathway and matriculate to a partner institution or another institution of their choosing. NC's plan incorporates: (1) r development of student cohorts; (2) strong faculty, staff, and peer mentorship; (3) comprehensive and concentrated student supports for entering and continuing ACES scholars; and (4) developmental experiences facilitated through partnerships with primary transfer institutions for career development and post-transfer support. In order to ensure NC retains and graduates as many ACES participants as possible, ACES scholars will have access to an array of student support services. An overview of these services and activities to support scholars in their development of academic/scientific skills, necessary psychosocial factors, and academic success follows, discussed below.

Summer Bridge. Summer Bridge is an evidenced-based practice to initiate and socialize incoming NC students to the college environment and academic expectations. The PI and Co-PI will work with the Dean of STEM and Business, & Management and other STEM Pathways personnel, including the assigned Counselor, to develop and facilitate a one-day summer bridge that will include an Introduction to Chemistry workshop, networking with project staff and other Chemistry faculty, and other activities that orient ACES scholars to the college, their studies, and the ACES program. All scholars will be strongly encouraged to participate in the Introduction to Chemistry workshop as a method to build a sense of community among the cohorts, even if they have already completed a comparable basic chemistry course. In addition, during the summer session, as part of the summer bridge program, students will complete an Introduction to College course, taught by Counseling faculty specifically identified and trained for this project. The Introduction to College course, which focuses on integration and expectation-setting aspects for new college students, will introduce participants to academic and occupational programs offered by the college and explore non-cognitive factors contributing to college success. Participants will learn the application of sociological and psychological principles that lead to educational success and goal attainment. Participants will develop a comprehensive student educational plan, reflecting ACES requirements and a pathway that details additional coursework required to attain their educational goals.

Forming a Community of Learners/Cohorts. ACES will form five, two-year cohorts of chemistry majors. Each cohort will begin their educational journey at NC directly after high school graduation by attending a summer bridge program. All students in cohorts will enroll in and complete the same general chemistry courses and one general education course as they move through their two-year ACES pathway. By taking these courses together, students will build peer support networks and benefit from their individual and collective strengths, while developing bonds that will persist as they complete their community college studies and transfer to university. Students in the cohort will also participate in additional co-curricular and professional development activities. The Student Engagement Center will work with the PI to organize social and educational events where former ACES scholars who have successfully completed the program and transferred, as well as faculty mentors can engage in community-building and mutual learning. Professional development activities will be advertised and strongly recommended to Scholars.

Structured Chemistry Pathways. NC developed highly structured pathways that identify the courses students need to complete their goal. These pathways are designed to minimize the choices students and provide them with a roadmap and additional support structures in order to reduce time to completion of a degree/transfer. During the project, NC will work with the University of California, Riverside and La Sierra University to establish a Transfer Admission Guarantee (TAG)/Chemistry Pathway for ACES scholars and future NC chemistry majors, guaranteeing them transfer to either university.

Faculty Advising and Mentoring. Faculty advisement at NC is a process of mentorship and communication between faculty advisors and students that enhances the quality of a student's college experience. Faculty advisors help students explore education and career goals as well as identify program pathways and appropriate courses. Faculty advisors also refer students to an array of college resources. The PI and Key Personnel will serve as faculty advisors/mentors for ACES participants and will meet with scholarship recipients twice per semester to discuss progress, address concerns, and provide scholars

with support and encouragement. The faculty advisors/mentors will work with the counselor to provide appropriate levels of student support throughout the program.

Peer Mentors. Since 2017, NC has engaged in intentional methods of supporting student success and completion with opportunities for students to mentor and support other students. For the ACES program, scholars will have the opportunity to become a peer mentor and/or receive peer mentoring. Second year scholars will be expected to participate in select co-curricular activities with first year scholars. All ACES scholars will also have the opportunity to participate in outreach to high school students. The PI will organize seminars at NC comprised of former scholars and other STEM students who have transferred to La Sierra or the University of California, Riverside, to discuss their experiences and provide mentorship to active ACES scholars. Peer mentorship directly benefits academic and social development of mentors and mentees. Mentors will support students by acting as role models; connecting them with campus resources; sharing their experiences; and assisting with the development of academic skills

Counseling. A counselor from the STEM Pathway program will be assigned to work with ACES participants. Scholars will meet with the assigned ACES counselor at least twice per semester. The counselor will work with each scholar to develop a comprehensive student educational plan that outlines career goals, identifies supportive services, and develops a timeline for degree completion. The counselor will use this plan to monitor student progress and ensure students are accessing services necessary for success. The counselor will follow-up with students at the start of each semester to update the plan and address any new barriers that may arise. The ACES counselor will also work with the PI to offer student success workshops for ACES scholarship recipients, targeting time management, test anxiety, study skills, and other topics.

Student Research/Internship Opportunities. The PI will work with the Dean of STEM, Business, & Management at NC to establish research and internship opportunities for ACES scholars at the University of California, Riverside, and La Sierra University and encourage their participation. In conjunction with the Student Outreach Office, the PI will work with faculty and staff from the universities to provide on-site information workshops with scholarship recipients and organize trips to local/regional research labs and universities to help familiarize students with these environments and increase likelihood that students will pursue opportunities outside of NC.

The Learning Resource Center. The Learning Resource Center at NC is a central hub where students can access tutoring support. The Learning Resource Center includes the Math and Science Success Center, the Writing and Reading Center, and the General Tutoring Center. All tutors are College Learning and Reading Association Certified, which is a nationally accepted standard of skills and training for tutors. All tutors must complete 18 hours of comprehensive tutor training through the ILA-1: Introduction to Tutor Training course. The Learning Resource Center also helps students navigate the on-campus library, provides research assistance to all students, and assists students with finding study groups across campus. The project team will encourage any ACES scholar who is struggling academically to access tutorial assistance through the Learning Resource Center

Pre-Transfer Exposure and Support. NC's Transfer Center is dedicated to increasing the number of students prepared for transfer to baccalaureate-level institutions. The Transfer Center provides encouragement and guidance to students in their various stages of the lifelong career development process. The Transfer Center offers students appointments to speak with a transfer advisor, meet with University representatives, and attend an array of transfer-focused events throughout the year. Transfer staff will work with ACES scholars to personally assist them on their path to transfer. ACES scholars will be exposed to transfer institutions through summer internships and attendance at public seminars and other events hosted at La Sierra University and the University of California, Riverside. The ACES program will also assist second-year ACES scholarship applying to various funded experiential learning/internship programs such as La Sierra's undergraduate research experiences, UCR's RISE summer research program, and national REUs.

Student Engagement Center. The Student Engagement Center supports all aspects of student engagement in co-curricular activities including but not limited to: (1) involvement in community service; (2) physical and mental wellness; (3) employment opportunities (on- and off-campus); (4) activities and

events; (5) field trips; and (6) personal, academic and professional growth opportunities. Student Engagement Center staff are there to ensure that each college student's experience is maximized to its fullest potential within a safe and healthy learning environment. The Student Engagement Center also provides all students access to basic necessities, including clothing, food, and emergency funds, among others.

Student Health & Psychological Services. The Student Engagement Center is also home to Student Health & Psychological Services, which strives to engage students in making informed decisions about their health and well-being. Mental health counselors work with students to overcome various personal issues in their lives, including adjustment to college life, family/relationship issues, stress, anxiety, depression, addiction, sexual assault, harassment, and more. Students are able to meet one-on-one with a counselor at no cost to them. ACES scholars will have access to this valuable service.

Linking College to Career. The Norco College Career Center (also located in the Student Engagement Center) serves students and alumni through career planning and employment services to connect them with tools, resources, people, and organizations that support their paths to success in the workforce. All scholars will have the opportunity to engage in career exploration, personality assessment, industry partnerships, and earn-and-learn/internships in order to support ACES student retention completion. Career resources are also available on the Career Center website for students, faculty, and staff to reference.

f. ACES Project Management Plan

Procedures for Managing the Project

While the Principal Investigator will be responsible for overall project implementation, he will work with the President of Norco College, Dr. Monica Green, and Dr. Jason Parks, Dean of STEM, Business, & Management, to establish a Project Leadership Team. The Project Leadership Team will serve as an advisory committee and work closely with the PI to develop, implement, manage, and assess the project. The Leadership Team will meet quarterly for the duration of the project to review program activities, identify and address potential challenges to project implementation and goal attainment, and work closely with the evaluator and PI to review documentation and data collected throughout the implementation process. The Project Leadership Team will include the PI; Key Personnel; the Dean of STEM, Business, & Management, the Director of Student Financial Services, the assigned STEM Counselor, the Director of Institutional Effectiveness, chemistry faculty from the University of California, Riverside, and chemistry faculty from La Sierra University.

Regular meetings and feedback will ensure ongoing monitoring of the project's progress in implementing key project components in a timely manner and within budget. This will also ensure that the project is fully integrated into NC processes and integrated into the college culture while adhering to the National Science Foundation requirements for administering the ACES program, including budgeting for allowable activities and delivering annual performance reports. While the Leadership Team will provide guidance to the project and help communicate program activities to the college community, the Project Implementation Team (below) will carry out day-to-day activities.

Principal Investigator. The ACES Program will be led by Dr. Virgil Lee, a Professor of Chemistry in the Chemistry Department at Norco College. Dr. Lee has been teaching at Norco College since 2016, and received his Ph.D. in Organic Chemistry from Stanford University. He is a member of the American Chemical Society, has published ten peer-reviewed articles, holds seven patents, and has served as PI on 12 research projects, including two NSF grants. As PI, he will be responsible for day-to-day implementation and management of the project, serve as the NSF contact, serve as a mentor to Scholars, and work with the external evaluator to collect project data to assess program impact to evaluate the efficacy of the ACES project components on student success. With assistance from a Grants Administrative Specialist, Dr. Lee will monitor program expenditures and ensure that the grant is implemented on time, within budget, and in compliance with NSF program requirements.

Senior Personnel. Dr. Christopher Lugo is an assistant professor in Chemistry at NC. In 2018, he earned his Ph.D. in Chemistry from the University of California, Riverside. Before completing his Ph.D.,

Dr. Lugo participated in research with the LaVallo Research Group at the University of California, Riverside, where he contributed to three published studies. For the ACES project, Dr. Lugo will offer student mentoring, develop and facilitate student success workshops and outreach activities, and other project activities each year during the fall and spring semesters.

Grants Administrative Specialist. The Principal Investigator will receive project support from a NC Grant Administrative Specialist. The Grant Administrative Specialist will provide administrative support, work with the Financial Aid and Business Offices to disperse scholarships to students, purchase supplies and materials for student activities, track student participation in grant activities, assist with gathering project data, and present the PI with monthly reconciled accountings of project expenditures.

ACES Counselor. The ACES Counselor will serve as an essential member of the project team. The ACES Counselor will have direct access to student records and will provide the PI will critical information to determine the initial eligibility of potential scholars and ensure that scholarships recipients remain eligible for their scholarships through enrollment in sufficient credits each semester and making satisfactory academic progress. The ACES Counselor will also assist the PI in providing targeted student services to ACES scholars, including counseling services to ensure they are following their comprehensive student education plan on the Chemistry Pathway, helping them transfer within two years.

Financial Aid Representative. The Director of Student Financial Services at NC will assign a Student Financial Services Analyst who will work with the PI to ensure that each scholarship recipient has their official EFC/financial need paperwork completed (as determined by the FAFSA), maintains full-time status (12+ units) and good academic standing; and that he/she receives the scholarship in a timely manner.

Management of Scholar Recruitment, Selection, Retention, and Replacement

Recruitment of Students. The ACES program will build upon the ongoing outreach efforts currently underway by NC's Promise Program. The Promise Program is known throughout the region for giving the opportunity to students to pay no tuition for their first two years, as long as they are enrolled full-time (12+ units) and maintain good academic standing. In 2019-2020, NC's Promise Program served nearly 500 students; almost a third of all incoming freshmen. The ACES program will create targeted recruitment materials and leverage existing communication mechanisms and pathways to disseminate program information as widely as possible, including outreach activities at high schools and information sessions (some of which will include parents). This will ensure that NC recruits academically talented, but low-income students to the ACES program.

NC will also create informational materials (in English and Spanish), an application form, and a list of required documents for the ACES program and distribute these materials during Promise Program information sessions as well as digitally via email and hardcopy through the USPS. During Winter intersession and early Spring semester of 2022, the ACES program will schedule special ACES information sessions, requiring interested students to apply in April/May. This will ensure that applicants are selected in time for the summer bridge program. Each year, the ACES program will follow the same recruiting schedule, but will begin to offer information sessions year-round to attract more students to the program.

Selection of Students. NC created selection criteria that reflects the institution's experience working with and supporting students from diverse backgrounds. The student application to become an ACES scholar will consist of the following required items: (1) a completed FAFSA (demonstrating financial need); (2) submission of high school transcript(s); (3) submission of 3 short essay prompts, mirroring those of the UC transfer application, describing the student's educational and career goals and how participation in ACES will help them achieve those goals; and (4) two letters of recommendation from high school teachers. The Leadership Team will select ACES cohorts during the Spring Semester for scholarship distribution beginning in the summer intersession during the summer bridge. Applicants must be a U.S. citizen, permanent resident, national, or refugee to participate in ACES.

The Project Leadership Team will review all applications submitted by the May 1 deadline date to ensure that the applications are complete and students meet minimum qualifications. The Project

Leadership Team will convene a selection committee meeting to review applications. Prior to the first selection committee meeting, the Project Leadership Team will develop a matrix by which to assess each application. This assessment will include a review of student motivation and commitment to academic studies and STEM career goals, communication and interpersonal skills, and ability to manage time, stress, and resources. The selection committee will then rank each student based on academic and non-academic strengths, awarding scholarships to the students with the greatest need and the ability to benefit.

Retention of Students. Please see section e. ACES Student Support and Programs for the plan to retain students.

Replacing Students Who Lose Eligibility. NC will begin distributing award scholarships in the first few weeks of summer intersession and then continue to provide scholarship support each term for two years. However, to remain eligible for a scholarship, students must maintain full-time enrollment, and overall GPA of 3.0, with a chemistry grade point average (GPA) of 2.7 (the minimum GPA required for entry into UCR's undergraduate chemistry baccalaureate programs). The PI will work with the ACES Counselor to review enrollment status and assess student progress and academic performance for all scholarship recipients at the end of each semester. NC expects some student attrition each semester due to completion and transfer, or student drop/stop out. It is also expected that a small number of scholarship recipients will experience academic hardship while in the program and fall below the minimum requirements for eligibility, particularly with regard to credits attempted/earned and GPA. Some students may also decide after completing the first year that they do not want to pursue a career in STEM.

At the end of each semester, students who are struggling academically will meet one-on-one with the PI and the ACES Counselor to develop a plan of action for improving the student's GPA. If the Scholar has not achieved significant improvement by the following semester, the student may be dropped from the program. To replace these students, NC's ACES program will engage in one of two strategies. If there are a large number of openings, the Project Leadership Team will conduct a mid-year competition to ensure that new students have the opportunity to apply. However, if there are only one or two unused awards, the committee will review applications from the previous competition, confirm student enrollment status, financial need, and academic eligibility, then make awards to the top-ranking students. The Project Management Plan, below, demonstrates the project management responsibilities for the first cohort. The second, third, fourth, and fifth cohorts will be similar to the first, but will be modified based on input from program evaluations.

Plan for Oversight of Student Support Services

The PI will work with the Dean of STEM, Business & Management, the STEM Counselor, and the Financial Aid representative, to coordinate proposed student support services specifically targeted for ACES scholars, including educational plan development and monitoring, a speakers' series highlighting STEM careers, an online networking site for ACES scholars, and social activities throughout the year to bring scholars together and maintain the learning community/cohort. The PI will also work with Riverside Community College District's Communications and Strategic Relations department to produce a dedicated ACES website that offers information about the ACES program, application materials, a master calendar of activities that lists all relevant events and activities, and will assist with updates as necessary (please see Table 8, below, for the ACES Scholars Program Management Plan for Cohort One).

Table 8: ACES Scholars Program Management Plan (Cohort One)

Objective	Program Activities	Performance Outcomes	Timeline	Responsible Person(s)
Planning	1. Program faculty/staff meet 2. Plan/create program orientation & Summer Bridge	1.1 Cohort classes for ACES scholars chosen and implemented 2.1 Implement orientation/Summer Bridge	01/22 – 06/22	PI, Dean of STEM, Business & Management, Counselor,

	3. Plan/create application forms 4. Plan/create recruitment tools	3.1 Forms complete 4.1 Tools complete		Financial Aid Representative
Recruitment	1. Conduct recruitment at feeder high schools 2. Ensure interested applicants complete FAFSA	1.1 List of qualified participants 2.1 Completed FAFSA for all student participants 2.2 Send completed FAFSA to Financial Aid office to determine awards	01/22-05/22	PI, NC Outreach Office
Select Students	1. Meet to review qualified students	1.1 Select participants/alternates 1.2 Notify participants of selection and status in program 1.3 Build cohort list for year 1	April-May 2022	PI, Project Leadership Team, Selection Committee
Program Implementation	1. Conduct student orientation(s) to program 2. Begin program 3. Students meet with counselor and faculty 4. Implement Summer Bridge Program 5. Meet to discuss student progress 6. Students receive comprehensive support, scholarships, and form a learning community	1.1 Orientation review via surveys 2.1 Initial disbursement of scholarships 2.2 Classes/cohorts begin 3.1 Counselor designs student education plan with each student 3.2 Counselor meets with students for progress updates (creates student reports) 3.3 Scholarship students enroll in summer courses if necessary 3.4 Students modify SEP (if necessary) 4.1 Students attend cohort summer program 5.1 Replace scholars who do not meet the minimum program requirements 6.1 Students are surveyed on their experiences	Summer, 2022 (06/22 – 06/23)	PI, Counselor, Financial Aid Representative
Program Assessment	1. Design surveys and records for student admission, progress, and transfer 2. Design database system to track baseline and selected students	1.1. Database management system in place to track baseline and scholarship program students 2.1 Measurement of student admission, progress, completion and transfer rates	Ongoing	PI, External Evaluator, Project Leadership Team

Securing Project Data and Ensuring Student Privacy

NC will use Colleague, a secure database to track scholarship applications and awards. Any demographic information (with specific student identifiers) obtained will be stored separately from personal identifiers and will be kept strictly confidential. The information obtained during the project will be secured and password protected in Colleague. Data will be kept on file for a period of five years after the completion of the project on the secured password protected office computer. After the five-year period has elapsed, the data will be permanently destroyed. Any paper copies of data will be shredded.

The PI will review individual student progress each semester, using information from these files to assess the success of ACES in increasing success, retention, graduation, and transfer rates. The PI will coordinate reporting requirements with the external evaluator, Office of Institutional Research, and the Financial Aid Office to ensure that he has data necessary to report program success, including student GPA (per course and cumulatively), successful course completion rates, and persistence to the next level of courses. This information will be reported in the aggregate to ensure student privacy, although individual student progression data will be used to revise educational plans and offer additional student assistance, as necessary. Colleague will also enable the Grant Administrative Assistant, PI and external evaluator to track student participation in project activities as well as other STEM activities endorsed and encouraged by the PI. All ACES scholar files will include each student's initial ACES application, the Financial Aid award letter, the student′s educational plan (updated each semester), a signed copy of the ACES scholar's contract, documentation of attendance in cohort activities, and semester transcripts.

g. Generation of Knowledge

The knowledge generating component of this project will focus on understanding how various aspects of ACES scholars' experience help to foster transfer mindset and build their STEM efficacy. This research will contribute significantly to the growing body of literature about best practices in the recruitment, retention, success, and completion as well as science identity formation among ow-income students, targeting students from racial and ethnic groups that are traditionally underrepresented in postsecondary education, l and the effect on academic performance and persistence in STEM.

h. Evaluation

The PI will work with an external consultant, Redwood Consulting Collective, to evaluate the impact of this project, utilizing a collaborative and utilization-focused approach (Shulha et al, 2015; Patton, 2008) to guide the evaluation plan. Adopting this approach will ensure the evaluation is sensitive to stakeholder concerns and needs and that it provides ongoing formative feedback to support high fidelity of implementation and ongoing program improvement. The evaluation will employ a two-stage, mixed-methods approach to holistically evaluate the project's implementation and outcomes. The evaluation activities will be informed by the existing literature on best practices in higher education STEM pedagogy and student support. The evaluator will work closely with the project team members to ensure that evaluation activities are incorporated meaningfully into the project plan.

Evaluation Questions

Formative Evaluation: 1.1 To what extent are project activities implemented with high quality and fidelity to the project plan? 1.2 To what extent do ACES scholars participate, enjoy, and benefit from project activities (e.g., summer bridge experience, mentoring activities, & STEM internships)? 1.3 What implementation barriers or challenges (if any) arise and how are these challenges overcome?

Summative Evaluation: 2.1 To what extent have the project objectives been met and what progress has been made towards achieving the project's long-term goal? 2.2 What project activities have had the greatest impact on ACES scholars?

Stage 1: Formative Evaluation (Y1-Y6)

During each project year, the evaluation team will evaluate the extent to which the project activities were implemented successfully and document the experiences and outcomes of each ACES student cohort. The evaluator will partner with the project team to track participant involvement in different

activities and implementation of the project. Each year the evaluator will also use complementary methods (i.e., surveys and interviews) to capture a range of stakeholder perspectives on implementation quality and document implementation successes and challenges, as well as students' outcomes. The evaluation team will work closely with the project team to contextualize and interpret evaluation findings and provide the project team with actionable data and recommendations for decision-making and improvement.

Formative evaluation methods: Formative evaluation methods will include: Dosage of participation in project activities, secondary data analysis of student outcomes provided by NC's Institutional Research office, interviews or focus groups with project team members and participants, and a brief ACES scholar survey that will examine change in Scholars in areas including but not limited to science identity, STEM self-efficacy, and career awareness and exposure.

Stage 2: Summative Evaluation (Y6)

In the final project year, the evaluation team will conduct a summative evaluation to determine the extent to which project objectives have been met across the lifetime of the grant and document the impact of the project on student outcomes. Progress towards long-term goal achievement will be captured through analysis of academic outcomes among Scholars compared to non-participants and NC's historical averages

Summative evaluation measures: Summative evaluation measures will include: Interviews with project team members, participating faculty, and administrators, secondary data analysis of ACES scholar and comparison student outcomes including course completion rates, STEM major retention, degree completion rates, and university transfer rates. ACES scholar outcomes will also be compared to historical averages to examine pre/post grant change.

Evaluation Collaboration

Collaborating with project team – Redwood Consulting will work closely with the project management team to provide them opportunity to give input and feedback on evaluation methods and measures. As questions evolve over the course of project implementation, evaluation activities may be adapted to ensure they are responsive to the team's information needs.

Analysis and Reporting

Quantitative data derived from surveys, observations, participation records, and student data will be analyzed using descriptive and inferential statistical techniques (e.g., gap analysis, repeated measures analysis). Student data will be disaggregated by STEM discipline, ethnicity, and gender. Qualitative data derived from interviews, focus groups, and other sources will be systematically coded and thematically analyzed.

Annual reports will triangulate findings across data sources to derive overarching themes, document implementation challenges, along with specific approaches that were successful in overcoming them, present evidence of progress towards goal achievement, and provide evaluative conclusions regarding each evaluation question. Evaluative findings will also be presented to the project team each year, along with data-driven recommendations for improvement. Finally, the evaluator will keep project team members updated via regular meetings and progress updates.

i. <u>Dissemination</u>

The PI will work with other members of the Project Leadership Team to disseminate the results of this project. Locally, the Leadership Team will regularly inform STEM faculty of the activities of this project and its impact on ACES scholars. The Project Leadership Team will also share this information with the Academic Senate, Associated Students, executive administration, the Board of Trustees, and the Riverside Community College District Foundation, with the hope of generating additional program and scholarship support to leverage federal funds. These dissemination activities will highlight student stories and share, district-wide, individual student achievements and successes. Regionally, the PI will share the

success of this project with other community colleges four-year universities as well as with other industry and higher education groups. Members of the Project Leadership Team will also attend meetings of local STEM groups to highlight program successes and identify additional resources for students.

Statewide and nationally, the PI will present at meetings and conferences. The PI will identify opportunities for participation on statewide efforts to increase student interest, enrollment, retention, and completion in STEM fields. There is currently an initiative underway by the University of California, California State University, and the California Community Colleges Chancellor's Office to increase student enrollment in STEM. The PI will attend joint meetings of California's public higher education systems, as appropriate, to not only solicit information but to network with others who are working to address declining interest in STEM careers. Lastly, the PI will seek opportunities nationally to share the results of this project at conferences organized by such entities as the Alliance for Hispanic Serving Institution Educators, American Association of Community Colleges, the Council for Opportunity in Education, and the Hispanic Association of Colleges and Universities. Although funding may limit attendance at national workshops, the PI will submit requests to present and then work with the college's leadership, Grants Office, and Foundation to identify resources to fund travel opportunities.

j. Broader Impacts

Riverside County, where Norco College is located, has among the lowest educational attainment rates in the state, with less than 25% of residents holding an associate degree or higher. Research on social economic mobility states that over their lifetime, students who graduate with just an associate's degree will earn less than half that of those attaining a bachelor's degree. There has been much research and debate on the exponential increase in college debt and its impact on low-income students seeking a bachelor's degree, as well as on those who continue to struggle with debt long after graduation. ACES will study the impact of providing low-income and underrepresented students with financial and comprehensive academic and personal supports in conjunction with social integration at both the community college and university levels, providing critical information to state and national discussions regarding ways to decrease college debt while increasing STEM bachelor's degree attainment for low-income and traditionally underrepresented minorities.

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NAME: Virgil James Lee

POSITION TITLE & INSTITUTION: Associate Professor of Chemistry, Norco College

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
The California State University Los Angeles	Los Angeles, CA	Chemistry (major) Mathematics (minor)	BS	1986
Stanford University	Palo Alto, CA	Organic Chemistry	Ph.D.	1992
UCLA	Los Angeles, CA	Business	MBA	1998

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
8/16-present	Assistant/Associate Professor, Norco College (Norco CA)
9/12-6/16	Lecturer, California State Polytechnic University, Pomona (Pomona, CA)
3/00-2/06	Vice President, Maxdem Incorporated (San Dimas, CA)
9/96-3/00	Manager of Market Development, Maxdem Incorporated (San Dimas, CA)
9/92-6/96	Program Manager, Maxdem Incorporated (San Dimas, CA)
8/86-9/87	Research Associate, Maxdem Incorporated (San Dimas, CA)

C. PRODUCTS
(see PAPPG Chapter II.C.2.f.(i)(c))
Products Most Closely Related to the Proposed Project

Publications
1) Collman, Lee, Kellen-Yuen, Zhang, Ibers, and Brauman Journal of the American Chemical Society 1995, 117, 692-703; "Threitol-Strapped Manganese Porphyrins as Enantioselective Epoxidation Catalysts of Unfunctionalized Olefins"
2) Collman, Zhang, Lee, Uffelman, and Brauman Science 1993, 261, 1404-1411; "Regioselective and Enantioselective Epoxidation Catalyzed by Metalloporphyrins"

Principal Investigator Activities with the NSF
3) Structure-Property Relationships for Polyquinolines; $58,500 (1997); NSF Phase I (DMI-9505282)
4) Structure-Property Relationships for Polyquinolines $292,000 (1997-1998) NSF Phase II (DMI-9505282)
5) Polyphenylene Bone Replacements and Supports; $64,900 (1997-1998); NSF Phase I

Other Significant Products, Whether or Not Related to the Proposed Project

Examples of Other Principal Investigator Activities
1) POSS Modified Polyphenylenes for Lightweight Rocket Components; $735,940 (2001-2002); Air Force Phase II (F04611-00-C-0012)
2) Rigid-Rod Polymers for Optical Applications; $99,600 (1997) DARPA Phase I
3) Rigid-Rod Polymers for Optical Applications; $748,000 (1997-1999); Army Phase II (DAAG-55-98-007)
4) Ultra-Low-Cost Rigid-Rod Polymers; $59,900 (1997); Navy Phase I (N00014-97-C-0155)
5) 12. Rigid-Rod Polymers for Low Cost MCMs [Multichip Modules]; $747,000 (1996-1998); DARPA Phase II (DAAH01-96-C-R046)

D. SYNERGISTIC ACTIVITIES
(see PAPPG Chapter II.C.2.f.(i)(d))

American Chemical Society Activities
Member (1987-present), Member-at-Large (2000-2020) and Member of the Board of Directors (2002, 2005, 2008, 2011, & 2020) of the Southern California Section; National Councilor (2003-2006, 2012-2020); Secretary (2014) and President (2015) of the Western Region Caucus; Member, Constitution and Bylaws Committee (2005-2006 & 2012-2020)

Astralux Environmental Solutions (Boulder, Colorado), Member of the Board of Directors (11/07-9/09)

NAME: Dr. Christopher Lugo

POSITION TITLE & INSTITUTION: Assistant Professor, Chemistry, Norco College, Norco, CA

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
University of California,	Riverside, CA,	Chemistry	B.S.	2012
University of California,	Riverside, CA,	Chemistry	M.S.	2014
University of California,	Riverside, CA,	Chemistry	Ph.D.	2018

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
2020-present	Assistant Professor, Chemistry, Norco College, Norco, CA
2017-2020	Adjunct Faculty, Chemistry, Norco College, Norco, CA
2017	Adjunct Faculty, Riverside City College, Riverside, CA
2015-2018	Teaching Assistant, University of California, Riverside, Riverside CA

C. PRODUCTS
(see PAPPG Chapter II.C.2.f.(i)(c))
Products Most Closely Related to the Proposed Project

N/A

Other Significant Products, Whether or Not Related to the Proposed Project

(1) J. F. Kleinsasser, S. E. Lee, C. A. Lugo, V. Tej, S. G. McArthur, V. Lavallo, " Synthesis of an Anionic Au(I) Hydroamination Precatalyst Supported by Charged Hydrido-Carboranyl Phosphine Ligands " Polyhedron, 2018, 156, 245-248; (2) 2. J. Estrada, C.A. Lugo, S.G. McArthur, V. Lavallo, " The Inductive Effects of 10 and 12-Vertex closo-Carborane Anion Ligand Substituents: Cluster Size and Charge Make a Difference " Chem. Commun., 2016, 52, 1824-1826; (3) 3. C.A. Lugo, C. Moore, A. Rheingold, V. Lavallo, " Synthesis of a Hybrid m-Terphenyl/o-Carborane Building Block: Applications in Phosphine Ligand Design " Inorg. Chem., 2015, 54, 2094 – 2096; (4) Kalinina, K. Worsley, C. Lugo, S. Mandal, E. Bekyarova, and R. C. Haddon, " Synthesis,Dispersion, and Viscosity of Poly(ethylene glycol)-Functionalized Water-Soluble Single-Walled Carbon Nanotubes " Chem. Mater., 2011, 23, 1246 – 125.

D. SYNERGISTIC ACTIVITIES
(see PAPPG Chapter II.C.2.f.(i)(d))

2020-present Faculty Advisor/Mentor, Norco College
2019-present Program Review Committee, Norco College
2012-2018 Undergraduate Mentor, Chemistry, University of California, Riverside
2015-2016 High School Summer Research Mentor, University of California, Riverside
2013-2014 Science Olympiad Coach, University of California, Riverside

SUMMARY PROPOSAL BUDGET

YEAR 1

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**28,955**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**31,955**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**31,955**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,264**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**40,219**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**2,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **50,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**10**) TOTAL PARTICIPANT COSTS				**50,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**3,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**20,000**	
TOTAL OTHER DIRECT COSTS				**23,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**115,219**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 65219)**					
TOTAL INDIRECT COSTS (F&A)				**24,457**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**139,676**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**139,676**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

1 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 2

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**29,579**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**32,579**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**32,579**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,437**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**41,016**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**4,800**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **130,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**22**) TOTAL PARTICIPANT COSTS				**130,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**5,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**22,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**197,816**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 67816)**					
TOTAL INDIRECT COSTS (F&A)				**25,431**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**223,247**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**223,247**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 3

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**30,858**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**33,858**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**33,858**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,790**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**42,648**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**4,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **159,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**27**) TOTAL PARTICIPANT COSTS				**159,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**10,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**27,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**232,648**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 73648)**					
TOTAL INDIRECT COSTS (F&A)				**27,618**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**260,266**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**260,266**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 4

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**31,530**	
2. **Chris Lugo - Senior Faculty**	0.05	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.05	0.20	0.25	**34,530**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**34,530**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**8,976**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**43,506**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**5,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **195,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**33**) TOTAL PARTICIPANT COSTS				**195,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**12,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**29,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**272,506**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 77506)**					
TOTAL INDIRECT COSTS (F&A)				**29,065**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**301,571**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**301,571**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 5

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	0.20	0.14	**32,219**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**35,219**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**35,219**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**9,167**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**44,386**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**5,000**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **226,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**38**) TOTAL PARTICIPANT COSTS				**226,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**13,000**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**30,000**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**305,386**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 79386)**					
TOTAL INDIRECT COSTS (F&A)				**29,770**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**335,156**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**335,156**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

YEAR 6

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - pi**	0.00	0.20	0.14	**32,925**	
2. **Chris Lugo - Senior Faculty**	0.00	0.00	0.11	**3,000**	
3.					
4.					
5.					
6. (**0**) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.20	0.25	**35,925**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**35,925**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**9,362**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**45,287**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**4,800**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **140,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**20**) TOTAL PARTICIPANT COSTS				**140,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**5,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**17,000**	
TOTAL OTHER DIRECT COSTS				**22,500**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**212,587**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) **Provisional Until Amended (Rate: 37.5000, Base: 72587)**					
TOTAL INDIRECT COSTS (F&A)				**27,220**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**239,807**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**239,807**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

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 ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

SUMMARY PROPOSAL BUDGET

Cumulative

FOR NSF USE ONLY		
PROPOSAL NO.	DURATION (months) Proposed	Granted
AWARD NO.		

ORGANIZATION
Riverside Community College District/Norco Campus

PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR
Virgil Lee

A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)	NSF Funded Person-months CAL	ACAD	SUMR	Funds Requested By proposer	Funds granted by NSF (if different)
1. **Virgil Lee - PI**	0.00	1.20	0.84	**186,066**	
2. **Chris Lugo - Senior Faculty**	0.05	0.00	0.66	**18,000**	
3.					
4.					
5.					
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	**0**	
7. (**2**) TOTAL SENIOR PERSONNEL (1 - 6)	0.05	1.20	1.50	**204,066**	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (**0**) POST DOCTORAL SCHOLARS	0.00	0.00	0.00	**0**	
2. (**0**) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	0.00	0.00	0.00	**0**	
3. (**0**) GRADUATE STUDENTS				**0**	
4. (**0**) UNDERGRADUATE STUDENTS				**0**	
5. (**0**) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				**0**	
6. (**0**) OTHER				**0**	
TOTAL SALARIES AND WAGES (A + B)				**204,066**	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				**52,996**	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				**257,062**	
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING $5,000.)					
TOTAL EQUIPMENT				**0**	
E. TRAVEL 1. DOMESTIC (INCL. U.S. POSSESSIONS)				**25,600**	
2. INTERNATIONAL				**0**	
F. PARTICIPANT SUPPORT COSTS					
1. STIPENDS $ **900,000**					
2. TRAVEL **0**					
3. SUBSISTENCE **0**					
4. OTHER **0**					
TOTAL NUMBER OF PARTICIPANTS (**150**) TOTAL PARTICIPANT COSTS				**900,000**	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				**48,500**	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				**0**	
3. CONSULTANT SERVICES				**0**	
4. COMPUTER SERVICES				**0**	
5. SUBAWARDS				**0**	
6. OTHER				**105,000**	
TOTAL OTHER DIRECT COSTS				**153,500**	
H. TOTAL DIRECT COSTS (A THROUGH G)				**1,336,162**	
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)					
TOTAL INDIRECT COSTS (F&A)				**163,561**	
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				**1,499,723**	
K. FEE				**0**	
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				**1,499,723**	

M. COST SHARING PROPOSED LEVEL $ **0** AGREED LEVEL IF DIFFERENT $

PI/PD NAME
Virgil Lee

ORG. REP. NAME*
Monica Green

FOR NSF USE ONLY		
INDIRECT COST RATE VERIFICATION		
Date Checked	Date Of Rate Sheet	Initials - ORG

C ***ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET**

Budget Justification

PERSONNEL

Principal Investigator: Virgil Lee, Ph.D., Associate Professor of Chemistry. Funds are requested for 20% academic year effort annually, and stipends (special projects) for summer and winter intersessions. As PI, he will be responsible for day-to-day implementation and management of the project, serve as the NSF contact, serve as a mentor to Scholars, and work with the external evaluator to collect project data to assess program impact to evaluate the efficacy of the ACES project components on student success. With assistance from the Grants Administrative Specialist, Dr. Lee will monitor program expenditures and ensure that the grant is implemented on time, within budget, and in compliance with NSF program requirements.

Senior Personnel: Christopher Lugo, Ph.D., Assistant Professor of Chemistry. Dr. Lugo will dedicate 18 hours of his institutional service hours towards project activities in fall and spring. He will be involved in student mentoring, workshop and outreach activities, as well as project events and experiences. Funds are requested to compensate him with stipends (special projects) in summer to participate in the Summer Bridge Program and winter to attend ACES-sponsored activities.

FRINGE BENEFITS

Riverside Community College District offers a comprehensive benefits package to employees that includes all health benefits, retirement and workers' compensation. Funds requested represent 19.4% of fixed costs, as well as 20% of the PI's salary for Health & Welfare in fall and spring of each year. Funds budgeted include anticipated increases in fringe benefits over the six-year grant period.

EQUIPMENT

No funds are being requested for equipment.

TRAVEL

In years 2-6 funds are requested for the PI to travel to professional conferences relevant to S-STEM and to the present preliminary project information and disseminate the findings of working with underrepresented community college students in Chemistry. These may include such conferences as HACU, AHSIE, SCCUR, and others. Without knowing exact location for future conferences, we have budgeted modestly for economy travel based on average costs our faculty incur to cover airfare or ground travel, lodging, per diem, and incidentals ($1,800 year 2, $1800 years 6). Funds are also requested for the PI and select student scholars to attend regional and national conferences to present what they learned in summer research opportunities, meet with industry professionals, and to interact with STEM students enrolled at four-year universities.

PARTICIPANT SUPPORT

Scholarships will be given to a cohort of 10 in year one, increasing each year, and ending with a cohort of 20 in year 5 (total of 75 participants) The scholarships will be in the amount of $5,000 in year one and increase to $7,000 in year two as a way of incentivizing and rewarding student persistence. This amount was chosen to maximize the number of scholars we support, while ensuring that they receive significant funding to prevent them from having to borrow funds for their unmet need and from having to be employed during the academic year.

Number, Size, and Duration of ACES Scholarships

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cohort 1-10	N=10; $5,000	N=10; $7,000				
Cohort 2-12		N=12; $5,000	N=12; $7,000			
Cohort 3-15			N=15; $5,000	N=15; $7,000		
Cohort 4-18				N=18; $5,000	N=18; $7,000	
Cohort 5-20					N=20; $5,000	N=20; $7,000
Totals	$50,000	$130,000	$159,000	$195,000	$226,000	$140,000

Total ACES scholars = 75; Each scholar supported @ $12,000 over 2 years ($5,000 in year 1 and $7,000 in year two); Total scholarship dollars distributed over life of grant = 75 scholars x $12,000 = $900,000 (60% of total grant amount).

OTHER DIRECT COSTS

Materials and Supplies

Funds are requested for materials to develop program brochures, newsletters, and other documents to promote the program, and for ACES hands-on activities (e.g., Rocket Project, NASA SUITS). Funds are also being requested for materials and supplies needed for program orientations and the annual Summer Bridge Program.

Other-Evaluation Services

For grant evaluation services, NC has agreed to work with Redwood Consulting Collective. Funds are requested in the amount of $20,000 in year 1, and $17,000 each year thereafter, for a total of $105,000. This represents 7% total cost of this project. Redwood Consulting will be supported by NC's Office of Institutional Research to ensure they have access to all educational student records necessary to complement their empirical work. A detailed evaluation work plan can be found in the project narrative.

INDIRECT COSTS

NC has a federal negotiated indirect cost recovery rate of 37.5% modified total direct costs.

*PI/co-PI/Senior Personnel Name: Dr. Virgil Lee

***Required fields**

Note: NSF has provided 15 project/proposal and 10 in-kind contribution entries for users to populate. Please leave any unused entries blank.

Project/Proposal Section:

Current and Pending Support includes all resources made available to an individual in support of and/or related to all of his/her research efforts, regardless of whether or not they have monetary value.[1] Information must be provided about all current and pending support, including this project, for ongoing projects, and for any proposals currently under consideration from whatever source[2], irrespective of whether such support is provided through the proposing organization or is provided directly to the individual. Concurrent submission of a proposal to other organizations will not prejudice its review by NSF, if disclosed.[3]

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current, Pending, Submission Planned, and Transfer of Support from top to bottom

[1] If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.
[2] For example, Federal, State, local, foreign, public or private foundations, non-profits, industrial or other commercial organizations or internal funds allocated toward specific projects.
[3] The Biological Sciences Directorate exception to this policy is delineated in PAPPG Chapter II.D.2.

Projects/Proposals

1. *Project/Proposal Title : Accelerating Chemistry Engagement & Success

*Status of Support : ○ Current ◉ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available): N/A

*Source of Support: National Science Foundation

*Primary Place of Performance : Norco College, Norco, CA

Project/Proposal Start Date (MM/YYYY) (if available) : 07/2022

Project/Proposal End Date (MM/YYYY) (if available) : 06/2028

*Total Award Amount (including Indirect Costs): $ 1,499,723

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1. 2022	2.00	4. 2025	2.00
2. 2023	2.00	5. 2026	2.00
3. 2024	2.00	6. 2027	2.0

2. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

3. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

4. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

5. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

6. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

7. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

8. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

9. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

10. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

11. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

12. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

13. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

14. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

15. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

In Kind Contributions

*Required fields

In-Kind Contribution Section:

Current and Pending Support also includes in-kind contributions (such as office/laboratory space, equipment, supplies, employees, students). If the in-kind contributions are intended for use on the project being proposed to NSF, the information must be included as part of the Facilities, Equipment and Other Resources section of the proposal and need not be replicated in the individual's Current and Pending Support submission. In-kind contributions not intended for use on the project/proposal being proposed that have associated time obligations must be reported below. If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current to Pending from top to bottom

1.*Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)
1.	
2.	
3.	

Year (YYYY)	Person Months (##.##)
4.	
5.	

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

2. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

3. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

4. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

5. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

6. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

7. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

8. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

9. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

10. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

*PI/co-PI/Senior Personnel Name: Dr. Christopher Lugo

*Required fields

Note: NSF has provided 15 project/proposal and 10 in-kind contribution entries for users to populate. Please leave any unused entries blank.

Project/Proposal Section:

Current and Pending Support includes all resources made available to an individual in support of and/or related to all of his/her research efforts, regardless of whether or not they have monetary value.[1] Information must be provided about all current and pending support, including this project, for ongoing projects, and for any proposals currently under consideration from whatever source[2], irrespective of whether such support is provided through the proposing organization or is provided directly to the individual. Concurrent submission of a proposal to other organizations will not prejudice its review by NSF, if disclosed.[3]

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current, Pending, Submission Planned, and Transfer of Support from top to bottom

[1] If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.
[2] For example, Federal, State, local, foreign, public or private foundations, non-profits, industrial or other commercial organizations or internal funds allocated toward specific projects.
[3] The Biological Sciences Directorate exception to this policy is delineated in PAPPG Chapter II.D.2.

Projects/Proposals

1. *Project/Proposal Title : Accelerating Chemistry Engagement & Success (ACES)

*Status of Support : ○ Current ◉ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available): NA

*Source of Support: National Science Foundation

*Primary Place of Performance : Norco College, Norco, CA

Project/Proposal Start Date (MM/YYYY) (if available) : 07/2022

Project/Proposal End Date (MM/YYYY) (if available) : 06/2028

*Total Award Amount (including Indirect Costs): $ 1,499,723

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1. 2022	1.00	4. 2025	1.00
2. 2023	1.00	5. 2026	1.00
3. 2024	1.00	6. 2027	1.00

2. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

3. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

4. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

5. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

6. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

7. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

8. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

9. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

10. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

11. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

12. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

13. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

14. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

Projects/Proposals

15. *Project/Proposal Title :

*Status of Support : ○ Current ○ Pending ○ Submission Planned ○ Transfer of Support

Proposal/Award Number (if available):

*Source of Support:

*Primary Place of Performance :

Project/Proposal Start Date (MM/YYYY) (if available) :

Project/Proposal End Date (MM/YYYY) (if available) :

*Total Award Amount (including Indirect Costs): $

*Person-Month(s) (or Partial Person-Months) Per Year Committed to the Project

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

In Kind Contributions

*Required fields

In-Kind Contribution Section:

Current and Pending Support also includes in-kind contributions (such as office/laboratory space, equipment, supplies, employees, students). If the in-kind contributions are intended for use on the project being proposed to NSF, the information must be included as part of the Facilities, Equipment and Other Resources section of the proposal and need not be replicated in the individual's Current and Pending Support submission. In-kind contributions not intended for use on the project/proposal being proposed that have associated time obligations must be reported below. If the time commitment or dollar value is not readily ascertainable, reasonable estimates should be provided.

Please enter your support entries so they are grouped together based on the "Status of Support" and are in the order of Current to Pending from top to bottom

1.*Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)
1.	
2.	
3.	

Year (YYYY)	Person Months (##.##)
4.	
5.	

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

2. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

3. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

4. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

5. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

6. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

7. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

8. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

9. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

In Kind Contributions

10. *Status of Support : ○ Current ○ Pending

*Source of Support :

*Primary Place of Performance :

*Summary of In-Kind Contributions :

Time Commitment - Month(s) (or Partial Person-Months) Committed Per Year

If the time commitment is not readily ascertainable, reasonable estimates should be provided.

*Year (YYYY)	*Person Months (##.##)	Year (YYYY)	Person Months (##.##)
1.		4.	
2.		5.	
3.			

*Dollar Value of In-Kind Contribution: $

Norco College
Facilities, Equipment, and Other Resources

Facilities and Equipment

STEM Center

Norco College has a STEM Center on campus that provides the following amenities and equipment to STEM students:

- Computer lab that is equipped with all necessary software programs needed for STEM students to complete assignments.
- Laptops are available to check out at no cost to students to use in the center and at home
- Study Spaces for individual and/or group study sessions, and tutoring sessions
- Workshop space and tools for students to build STEM-related projects
- Free use of copier and printers for students to print/copy assignments as needed

Chemistry Labs

Norco College has two labs dedicated to chemistry courses.

Other Resources

STEM Counseling Services

The School of STEM Counselor is located in the STEM Center. Students can schedule an appointment with the STEM counselor to: (1) Develop a Student Educational Plan; (2) Review Associate Degree and/or transfer requirements; (3) Provide a graduation and/or transfer check; (4) Complete a Dismissal/Readmit Contract; (5) Provide Career Guidance; (5) Assist students with grade related and other academic/course decisions

Resource Library

The resource library at NC provides students with STEM-related journals, books, and other STEM-related materials.

Learning Resource Center

The Learning Resource Center will identify and hire tutors who successfully completed Chemistry courses at Norco College. These tutors will provide free tutoring in the STEM Center and will also disseminate the course material to help students on how to study. Students who attend tutorial sessions will also learn appropriate application of study strategies, e.g., note taking, organization, etc. The Learning Resource Center also includes a Math Center, a Writing and Reading Center, and the General Tutoring Center. These three centers provide comprehensive tutoring services for many subjects, including general education, writing, math and chemistry.

Faculty Advising and Mentoring

Faculty advisement at NC is a process of mentorship and communication between faculty advisors and students that enhances the quality of a student's college experience. Faculty advisors help students explore education and career goals as well as identify program pathways and appropriate courses. Faculty advisors also refer students to an array of college resources. The PI will serve as faculty advisor/mentor for project participants and will meet with scholarship recipients twice per semester to discuss progress, address concerns, and provide support and encouragement. The faculty advisor/mentor will work with the counselor to provide appropriate levels of student support throughout the program.

Student Engagement Center

The Student Engagement Center supports all aspects of student engagement in co-curricular activities including but not limited to: (1) involvement in community service; (2) physical and mental wellness; (3) employment opportunities (on- and off-campus); (4) activities and events; (5) field trips; and (6) personal,

academic and professional growth opportunities. Student Engagement Center staff are there to ensure that each college student's experience is maximized to its fullest potential within a safe and healthy learning environment. The Student Engagement Center also provides all students access to basic necessities, including clothing, food, and emergency funds, among others.

Student Health & Psychological Services
Student Health & Psychological services. as well as Student Health & Psychological Services, which strives to engage students in making informed decisions about their health and well-being. Mental health counselors work with students to overcome various personal issues in their lives, including adjustment to college life, family/relationship issues, stress, anxiety, depression, addiction, sexual assault, harassment, and more. Students are able to meet one-on-one with a counselor at no cost to them. Project participants will have access to this valuable service.

STEM Club
The STEM Club provides its members with STEM-related opportunities, field trips, and hands-on projects (e.g., rocket project and NASA SUITS).

Student Success Workshops
The STEM Student Success Center hosts a series of student success workshops and a speaker series of alumni, as well as STEM industry leaders.

University Representative Visits
The STEM Student Success Center holds meeting with university representatives to review admission and transfer requirements and also to look over student transcripts.

Career Center
The Career Center provides students with many free, readily accessible online career-related websites, transfer tools, and tutorials for homework assistance websites including:

Career Tools
- STEM Careers - resource website for those seeking careers in STEM
- Career Café is a virtual Career Center open 24/7
- Eureka - offers a collection of occupational and career-related information
- California Colleges - an official source for college and career planning
- My Majors - Assists students in choosing a major

Transfer Tools
- AA-T/AS-T Getting an AA-T or an AS-T Degree makes it easy to transfer from a California community college into the CSU system.
- STEM Pathway Project at University of California, Riverside (UCR)
- ASSIST - an online student-transfer information system that shows how course credits earned at one public California College or university can be applied when transferred to another.
- The Transfer Planner - Is a tool to help you track and plan your California Community College work to meet general education requirements for the California State University (CSU) and the University of California (UC).
- CSU Mentor - Assists students in planning for college, in selecting the appropriate CSU campus to attend, how to finance their education, applying for admission.
- UC Admissions
- TAG (Transfer Admission Guarantee) - Seven UC campuses offer students attending a California Community College guaranteed admission through a TAG.

- x NC Honors Program - The RCCD Honors Program is a member of the Honors Transfer Council of California. These memberships provide our honors students with access to negotiated transfer agreements available only to honors students.
- x TAP (Transfer Alliance Program) - The RCCD Honors Program is a member of UCLA's Transfer Alliance Program.
- x Association of Independent California Colleges and Universities (AICCU) is the unified statewide voice of California's private, non-profit, WASC accredited colleges and universities for state and federal policy issues.

Homework Tutorials

- x Khan Academy - has a library of over 3,000 videos covering everything from arithmetic to physics, finance, and history and 315 practice exercises.
- x Guides available at the NC Library:
  - Basic Mathematics and Pre-Algebra
  - College Geometry
  - Elementary, Intermediate, and College Algebra
  - Pre-Calculus and Calculus
  - Trigonometry
- x Math and Reasoning Skills Improvement
- x Science Skills Improvement
- x 1001 Math Problems - assists students with math by providing content about math rules land how to apply them to problems.
- x Study Stack - provides students with flashcards to help them study online or via app.

Personnel

Grants Administrative Specialist (leveraged resource). NC will identify a Grants Administrative Specialist who will dedicate up to 20% time and effort, year-round, to support ACES. The Grant Administrative Specialist will provide administrative support to the PI, work with the Financial Aid and Business Offices to disperse scholarships to students, purchase supplies and materials for student activities, track student participation in grant activities, assist with gathering project data, and present the PI with monthly reconciled accountings of project expenditures.

ACES Counselor (leveraged resource). The ACES Counselor will dedicate 5% time and effort to serve as an essential member of the project team. The ACES Counselor will have direct access to student records and will provide the PI will critical information in not only determining the initial eligibility of potential scholars, but ensuring that scholarships recipients remain eligible for their scholarships through enrollment in sufficient credits each semester and making satisfactory academic progress. The ACES Counselor will also assist the PI in providing targeted student services to ACES scholars, including counseling services to ensure they are following their comprehensive student education plan on the Chemistry Pathway, helping them transfer within two years.

Financial Aid Representative (leveraged resource). The Director of Student Financial Services will assign a Student Financial Services Analyst at 5% time and effort who will work with the PI to ensure that each scholarship recipient has their official EFC/financial need paperwork completed (as determined by the FAFSA), maintains full-time status (12+ units) and good academic standing; and that he/she receives the scholarship in a timely manner.

Planning and Recruitment Activities, Year 1

Norco College will use leveraged resources to support project planning and recruitment activities for Cohort One of the ACES project.

Data Management Plan
Norco College-ACES

As part of the California Community College System, Norco College (NC) collects and reports student data via the MIS (Management Information System). The College has extensive systems in place to track students across programs and time periods, their academic performance, and course and program outcomes. NC has functional and up-to-date systems that can track a specific student's college experience from enrollment in a specific course, to grades per course to progress toward completion, to moving from one District college to another, to providing certificate and degree information on that student and any cohort of students.

NC also has the ability to assign unique identifiers to special populations that allow accurate evaluation of and reporting on special programs and grants. The students served through the NC S-STEM project will be assigned an identifier so that appropriate monitoring can occur at the individual student level as well as in the aggregate. Principal Investigator (PI) Dr. Virgil Lee will work closely with NC's Office of Institutional Research and Effectiveness to obtain relevant data at regular intervals for the purposes of data reconciliation, analysis and reporting.

The data collected during this project will include numerical data, obtained from student records; participatory data, collected by faculty mentors; and qualitative evaluation measures including survey and interview results, collected by Redwood Consulting Collective (the external evaluator) and the PI. This project will not involve laboratory animals or other non-human data. Human data is associated with the project's goal of increasing undergraduate student participation, retention, and graduation in STEM disciplines, before and after transfer, including underrepresented and low-income students.

The S-STEM project will utilize data collection and storage procedures that comply will all federal and institutional guidelines for the protection of human subjects. The evaluation and research plans involve collection of standard academic records, as well as supplemental data used to demonstrate project impact and outcomes. The Project Leadership Team will collaborate with the external evaluator to establish appropriate data collection, organization, and storage procedures for student records, survey, interview transcripts, and other relevant project data. Data will be made available to NSF and other relevant agencies upon request.

The data collection to support the program evaluation will be done in a collaborative manner; however, analysis and reporting will be the responsibility of the evaluation team and will not include names or identifying information on reports furnished to the PI. The external evaluator will be responsible for protecting participant confidentiality, and will ensure that all evaluation materials will be securely stored. Only aggregated results will be used for dissemination and publication. NC considers the confidentiality of our participants a high priority, and every effort will be made to preserve it. The data will be preserved for at least three years beyond the award period, as required by NSF guidelines.

NORCO COLLEGE

April 5, 2021

National Science Foundation
2415 Eisenhower Avenue
Alexandria, Virginia 22314

To Whom It May Concern,

The Norco College Financial Aid Office understands guidelines and requirements of the S-STEM program. Below, the Financial Aid Office has confirmed the institutional definition of low income, and is formally stating its commitment to support the S-STEM project as described in the proposal, if awarded.

At Norco College, financial need is the difference between the cost of attendance (COA) at a school and a student's Expected Family Contribution (EFC). While COA varies from school to school, a student's EFC does not change based on the school of attendance. Most financial aid offers will not meet a student's entire calculated financial need. This is because federal programs have annual and lifetime limits or a school may not have enough funds to meet the financial needs of every student who applied.

The following federal needs-analysis formula is used to compute financial need for students that applied for federal financial aid:

Cost of Attendance (COA) – Expected Family Contribution (EFC) = Financial Need

Unmet need is the gap between the cost of attendance and all student resources that do not need to be repaid, such as scholarships, grant aid, Federal Work Study and a student's Expected Family Contribution (EFC), calculated in the Free Application for Federal Student Aid (FAFSA). Unmet Need is defined as the difference between Financial Aid Award and Financial aid need.

Financial Need - Financial Aid awarded = Unmet Need

At Norco College, the 2019-2020 full time annual total cost of attendance for a student living at home was $14,876; for a student living away from home, it was $26,612. The average unmet need of low-income students in 2019-2020 was $11,769.

If the National Science Foundation has any questions or concerns regarding Norco College's definition of Unmet Need, I can be reached at (951) 372-7137, or by email at maria.gonzalez@norcocollege.edu.

Sincerely,

Maria Gonzalez

Maria Gonzalez, Ed.D.
Director Student Financial Services
Norco College

Norco College
NSF S-STEM Project Details

Name of institution =	Norco College
Anticipated number of unique Scholars supported =	72
Anticipated average annual amount of each scholarship =	$6,250
Anticipated number of years of scholarship support per scholar =	2

Name of degree on diploma awarded to Scholars:
Name #1 - Associate Degree for Transfer, Chemistry

NAME: Silvana McCormick (formally Silvana Bialosiewicz)

POSITION TITLE & INSTITUTION: Executive Director, Redwood Consulting Collective

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
Sonoma State University	Rohnert Park, CA	Psychology & Applied Statistics	Bachelor of Arts	2010
Claremont Graduate University	Claremont, CA	Psychology- Program Evaluation & Applied Research Methods	Master of Arts	2013
Claremont Graduate University	Claremont, CA	Psychology- Program Evaluation & Applied Research Methods	PhD	2017

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
2016-Present	Executive Director, Redwood Consulting Collective, Santa Rosa CA
2015-2016	Program Evaluator, California State University, San Bernardino, San Bernardino, CA
2013-2016	Research & Evaluation Lab Manager, Claremont Graduate University, Claremont, CA
2013-2016	Senior Research Associate & Project Manager Claremont Graduate University, Claremont, CA
2014-2014	Instructor, Claremont Graduate University, Claremont, CA
2014-2014	Consultant, California Afterschool Network & CA Department of Education
2014-2014	Consultant, Partnership for Children & Youth, Oakland CA
2013-2013	Research Associate, Public Profit, Oakland CA
2011-2013	Research Associate, Claremont Graduate University, Claremont, CA

C. PRODUCTS

(see PAPPG Chapter II.C.2.f.(i)(c))

Products Most Closely Related to the Proposed Project

McCormick, S. (2020). C5 Program (Catalzying Computing & Cybersecurity in Community Collleges) Year Five Evaluation Report. Whatcom Community College, Whatcom, WA.
McCormick S. & Rottapel, M. (2019) C3P Program (Community College Cyber Pilot Scholarship-for-Service) Year One Formative Evaluation Report. Whatcom Community College, Whatcom, WA.
McCormick, S. & Rottapel, M. (2019). ISSUES-X Project (Investigating Student Success Using Evidence-Based Strategies Expanded) 2018-2019 Evaluation Report. California State University, San Bernardino, CA.
McCormick, S. & Rottapel, M. (2018). Noyce Scholars Program, 2017-2018 Summative Evaluation Report. California State University, San Bernardino, CA.
McCormick, S. & Rottapel, M. (2018). Noyce Fellowship Program, 2017-2018 Evaluation Report. California State University, San Bernardino, CA.

Other Significant Products, Whether or Not Related to the Proposed Project

McCormick, S. & Manta-Myer, J. (manuscript in preperation). A Guidebook for Continuous Quality Improvement in Expanded Learning Programs. California AfterSchool Network and the California Department of Education. Sacremento, CA.
McCormick. S. (2017). Moving the Needle on Program Quality: An Examination of the Organizational Characteristics that Drive Improvement in Expanded Learning Programs. Doctoral Dissertation, Claremont Graduate University.
Bialosiewicz, S. & Berry, T. (2015). What is Good Work? Youth-Program Evaluator Perspectives on High Quality Practice. Paper presented for a Presidential Strand Session at the Annual Conference of the American Evaluation Association, Chicago, IL.
Kumar, S., Mayo, T., Sommer, H., Carlsson, J., & Bialosiewicz, S. (2014). The building intentional communities program: Creating engaged, critical thinkers in out-of-school-time. Journal of Extended Learning Opportunities, 1, 8-17.

D. SYNERGISTIC ACTIVITIES

(see PAPPG Chapter II.C.2.f.(i)(d))

As the Executive Director and Senior Project Manager of Redwood Consulting Collecting (2016-present), Dr. McCormick has designed and implemented evaluations of many multi-year, NSF-funded educational programs in Higher Educational settings. These include the Proactive Recruitment in Introductory Science and Mathematics (PRISM) program, the Robert Noyce Teacher Scholarship Program, the Improving Undergraduate STEM Education (IUSE) program, the Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) program, and the Community College Cyber Pilot (C3P) program.

As an Evaluation Consultant for CSUSB〈s College of Natural Sciences (2016), Dr. McCormick provided one-on-one evaluation support for STEM faculty that had participated in an institute on EBTPs in STEM education and were piloting these strategies in their courses. This support included consulting meetings, the development of evaluation plans, measure development, data analysis, and a summary of formative findings. These services provided faculty with an opportunity to collect rigorous data on the

NAME: Molly Rottapel

POSITION TITLE & INSTITUTION: Executive Director, Redwood Consulting Collective, Inc.

A. PROFESSIONAL PREPARATION
(see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
University of Guelph	Guelph, Ont, Canada	Psychology	Bachelors of Arts	2008
Claremont Graduate University	Claremont, CA	Organizational Behavior & Program Evaluation	Masters of Arts	2012
Claremont Graduate University	Claremont, CA	Organizational Behavior	Ph.D.	2017

B. APPOINTMENTS
(see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
2016 - present	Executive Director, Redwood Consulting Collective, Los Angeles, CA
2015-2016	Assistant for Research, Executive Corporate Learning Forum, Los Angeles, CA
2015	Associate Consultant, AMGEN, Woodland Hills, CA
2015	Program Evaluator, Kravis Leadership Institute, Claremont, CA
2014	Employee Engagement Consultant, DIRECTV, Los Angeles CA
2014	Associate Consultant, Sagatica, Executive & Leadership Development Firm, San Diego, CA
2013-2014	Qualitative Program Evaluator, Healthy Rancho Cucamonga, Dining Program, Rancho Cucamonga, CA
2012	Evaluation Consultant, Cancer Legal Resource Center, Los Angeles, CA
2011-2016	Research & Teaching Assistant

C. PRODUCTS

(see PAPPG Chapter II.C.2.f.(i)(c))

Products Most Closely Related to the Proposed Project

McCormick, S. & Rottapel, M. (2020). ISSUES-X Project (Investigating Student Success Using Evidence-Based Strategies Expanded) 2019-2020 Evaluation Report. California State University, San Bernardino, CA.
McCormick S. & Rottapel, M. (2020) C3P Program (Community College Cyber Pilot Scholarship-for-Service) Year Two Formative Evaluation Report. Whatcom Community College, Whatcom, WA.
McCormick, S. Rottapel, M (2020). Diversity & Equity in Promotion, Tenure, & Hiring (DEPTH) Evaluation Report for California State University, San Bernardino. Redwood Consulting Collective, Inc. Santa Rosa CA.
McCormick, S. Rottapel, M. Coleman, M (2020) Math & Science Scholars for the Inland Empire, Phase III Evaluation Report for Report for California State University, San Bernardino. Redwood Consulting Collective, Inc. Santa Rosa CA.
McCormick, S. & Rottapel, M. (2018). Noyce Scholars Program, 2017-2018 Summative Evaluation Report. California State University, San Bernardino, CA.
McCormick, S. & Rottapel, M. (2018). Noyce Fellowship Program, 2017-2018 Evaluation Report. California State University, San Bernardino, CA.

Other Significant Products, Whether or Not Related to the Proposed Project

Rottapel, M. C. (2017). Pardon the interruption: An examination of the antecedents and outcomes of multitasking in the workplace. Doctoral Dissertation: Claremont Graduate University.

D. SYNERGISTIC ACTIVITIES

(see PAPPG Chapter II.C.2.f.(i)(d))

As the Executive Director and Senior Project Manager of Redwood Consulting Collecting (2016-present), Dr. Rottapel has designed and implemented evaluations of many multi-year, NSF-funded educational programs in Higher Educational settings. These include the Robert Noyce Teacher Scholarship Program, the Improving Undergraduate STEM Education (IUSE) program, the Organizational Change for Gender Equity in STEM Academic Professions (ADVANCE) program, and the Community College Cyber Pilot (C3P) program.