2015 Annual Performance Report

Submitted: 02/01/2016 03:31 PM

U.S. Department of Education
Title V - Promoting Postbaccalaureate Opportunities for Hispanic Americans

General Information

1. PR/Award #: P031M140025
2. UNIT (NCES) ID#: 110529
3. Project Title: Project MENTORES (Mentoring, Educating, Networking & Thematic Opportunities for Research in Engineering & Science)
4. Grantee Name: CAL POLY POMONA FOUNDATION INC
5. Grantee Address: 3801 W TEMPLE AVE POMONA, CA 91768
6. Project Director Name and Title: Behnam Bahr, Associate Dean for Research & Graduate Studies
   Phone # and Ext: 9098692440
   Email Address: Bbahr@cpp.edu
7. Reporting Period: From: 10/01/2014 To: 09/30/2015 (mm/dd/yyyy)
   Reporting detail: Year grant was awarded: 2014
   Year grant is supposed to end: 2019
   Total expected duration of grant (years): 5
8. Authorized Representative
   Name: Behnam Bahr  Email: Bbahr@cpp.edu
   Telephone: 909 869-2440  Date: 01/22/2016
Section 1: Executive Summary

The purposes of the legislation that established the Title V Promoting Post baccalaureate Opportunities For Hispanic Americans (PPOHA) Program are to: (1) expand post baccalaureate educational opportunities for, and improve the academic attainment of, Hispanic students; and (2) expand the post baccalaureate academic offerings as well as enhance the program quality in the institutions of higher education that are educating the majority of Hispanic college students and helping large numbers of Hispanic and low-income students complete postsecondary degrees.

1a. The project has made contributions to the following areas - select all that apply:

- Research [X]
- Knowledge [X]
- Practice [X]
- Policy

1b. The population served by this project is/was (check all that apply and indicate what percentage of the total project’s effort was directed at that population):

<table>
<thead>
<tr>
<th>Population served</th>
<th>% Total Project Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>X Students</td>
<td>80</td>
</tr>
<tr>
<td>X Staff</td>
<td>0</td>
</tr>
<tr>
<td>X Faculty</td>
<td>20</td>
</tr>
<tr>
<td>X Administration</td>
<td>0</td>
</tr>
<tr>
<td>X Other population from institution</td>
<td>0</td>
</tr>
<tr>
<td>X Community members</td>
<td>0</td>
</tr>
<tr>
<td>X Other Specify</td>
<td>0</td>
</tr>
</tbody>
</table>

1c. Summarize the impact your Title V PPOHA grant has had on your institution’s capacity to contribute to fulfilling the goals of the legislation, and some major highlights of the project goals.

Project MENTORES serves as the catalyst for inter-segmental work by promoting the development of additional across-discipline partnerships among college faculty/personnel. The shared goal is serving students effectively while working toward closing the achievement gap for underrepresented students. Project MENTORES is an academic enrichment project intended to expand, increase and graduate more URM students in graduate STEM programs. It will expand existing resources/services and offer innovative services to support mentoring, educational enrichment and intervention, networking and professional career development, and science and engineering and applied research opportunities focused on water/energy.

Project MENTORES goal of increasing institutional capacity for multi-disciplinary graduate training and acquiring/installing equipment for rapid upstart of water/energy nexus applied research/Bioremediation projects. Equipment purchased during reporting period toward meeting this goal include:

* Photobioreactor with software purchased; for measurement of environmental parameters in batch/continuous growth; pyrosequencing, characterize microbial community responsible for bioremediation of nitrate contaminated ground-waters using wood-chip bioreactors; compare chemical analysis of aerated aquifers, contaminated with petrochemical to better understand bio-geological dynamics of systems.

* Innova2System to explore nanostructures of photoelectric energy conversion/water purification materials: nanomaterial structure observation, physical property analysis, students use state-of-art instrument to explore nanostructures photoelectric energy conversion/water purification materials; measure electrical conductivity, high-precision measuring system for PhD research.

* Shimadzu TOC LCSH workstation package to provide analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline; to determine whether sulfates inhibit denitrification in system; TOC...
analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline water; students analyze samples in one sequence without human interruption.

During Project MENTORES Year 1, consistent with grant objectives, the process was initiated for hiring 4 Graduate Student Lab Assistants for assigned research with Project MENTORES Faculty. These 4 Graduate Assistant's work research contribution is in support of the scholarly investigation of water resource management and related sustainability issues in California, specifically focused on agricultural and urban water use. Of the 4 Graduate Student Lab Assistants, 1 was hired to work with the Director of the Lyle Center for Regenerative Studies; the 2nd to assist the Project MENTORES Internal Evaluator with coordination of Project MENTORES student participant interviews, focus groups, qualtrics surveys, coding/analyzing interview data, developing STEM diversity literature database and manuscript; the 3rd Graduate Student Lab Assistant position is in recruitment phase and will be assigned to work with the Learning Resource Center to provide assistance to STEM graduate students with their thesis, project/proposal, publication, and developing/updating a Project MENTORES Student Handbook; and the 4th Graduate Student Lab Assistant is assigned to develop/coordinate an annual STEM Graduate Student Symposium/Poster showcase.

1d. Describe contributions the project has made to research, knowledge, practice and/or policy.

Project MENTORES/PPOHA grant contribution to research on water/energy sustainability from collaboration with the Cal Poly Pomona/Lyle Center for Regenerative Studies, the university’s premier sustainability project, is the catalyst for developing sustainable water/energy practices for the state of California in the face of severe drought, climate change, and population growth. Project MENTORES/PPOHA grant supports Cal Poly Pomona's pledge for meeting California’s goal to reduce water/energy consumption by 20% within the next six years.

Research presentation by Kyle D. Brown, Ph.D. (Other Professional Personnel/Project MENTORES/PPOHA) and Gilbert Verdugo (Graduate Assistant/Project MENTORES/PPOHA grant); Presentation "From Degeneration to Regeneration? Inquiry into the Environmental, Social and Economic Viability of California’s Salad Bowl and Central Valley." Association for Environmental Studies and Sciences - June 25, 2015 Conference. Presentation description: The counties of the San Joaquin Valley and the Central Coast of California comprise the most prolific agricultural region in the United States. In 2012, these counties combined for over $35 Billion in gross revenue from agricultural production, much of it contributing to transnational exports (CAS Review, 2014). At the same time, this region faces significant environmental challenges in the form of disproportionately high pollution burdens, significant social challenges associated with poverty, educational attainment, housing and political marginalization, as well as long-term economic challenges about the continued viability of production consistent with historical levels, particularly given persistent droughts and other implications of climate change. This research project provided analysis of the identified region through the three-part lens of sustainability, examining environmental, social and economic indicators to assess the long-term prospect for the region as a continued leader in agricultural production, and the implications for the environment and its people. The results prompt numerous relevant questions about the continued subsidizing of agricultural exports in the face of declining water resources, the environmental consequences of such an economy, and the formation of inequalities across socio-economic categories resulting from the distribution of environmental burdens and economic opportunity. This analysis contributes to the growing literature on cases of decline and collapse in the face of changing environmental, social, and economic conditions, and poses thoughtful discussion about regenerative futures for such communities.

Additional contribution to research on water/energy sustainability provided by Gilbert Verdugo (Graduate Assistant/Project MENTORES/PPOHA grant). Graduate Assistant’s work research contribution in support of scholarly investigation of water resource management and related sustainability issues in California, specifically focused on agricultural and urban water use. Graduate Assistant responsibilities include collection and analysis of statewide agricultural production and irrigation consumption data, environmental pollution burden data for California communities including air and water quality data, and urban water use data, as well as related social and economic characteristics. This position supports the collective impact approach of the Cal Poly Pomona/Lyle Center for Regenerative Studies in examining the interrelationship of environmental, social, and economic factors in regenerative processes.

Additional Research efforts from MENTORES Graduate students working with an assigned Project MENTORES Faculty Mentor include the following:
A) Research efforts relevant to water science including: measuring streamflow and spring discharge, installing pressure sensors, installing thin plate V-notch weirs, and documenting storm events. The streamflow and spring discharge was measured in Icehouse Canyon at biweekly intervals utilizing various methods. For example, the velocity-area method was used primarily along the main channel of Icehouse Creek in order to determine surface flow rates. This particular method involved measuring the average stream velocity using a portable flow meter and measuring the cross-sectional area of the stream channel with stainless steel rulers of different lengths. In addition, several thin plate V-notch weirs constructed from acrylic material were installed at selected spring locations to determine discharge values more accurately. Two pressure sensors were also installed at specific locations to monitor spring discharge continuously for long periods of time. The photograph below illustrates how the pressure sensor connects to a laptop computer for viewing and downloading water pressure data. Moreover, storm events in Icehouse Canyon were documented by measuring the amount of precipitation using five all-weather rain gauges that were installed at different elevations within the watershed area. The rain data will be useful for water budget analysis and water resources planning.

B) Research preparations for Master’s thesis involving the study of tsunamis. Specifically, project is focused on an attempt to quantify tsunami source energy based on data collected at deep ocean buoys, which can be used to improve current understanding of the relationship between tsunamis and the earthquakes that cause them. In essence, this work will revolve around the development of a magnitude scale that will mirror the procedure introduced by Charles Richter in the 1930s that used ground motions to produce a magnitude scale for seismic waves. This project is still in the initial phase; most of the work done has consisted of becoming familiar with the literature and outlining the remainder of the work. The past few months have involved studying edits to my thesis proposal and focusing on finishing the rest of the background reading. The data sets have also been downloaded from the National Oceanic and Atmospheric Administration’s (NOAA) database. Subsequent months will involve searching for additional buoy data from other sources and the write up of the main code that will comprise the bulk of the thesis project. Summer 2015 involved the write up of the initial code that would organize the datasets, and allow the user to interactively select date and time ranges to clip the data set and do some initial processing. The code would then select the largest amplitude of the water height detected at each buoy for each major tsunami event, and create a simple output file that will be used in the second code. Following work will involve plotting maximum wave heights with distance away from the tsunami source to see how wave heights decay with distance, and using a least squares regression process to fit a curve to each data set for each tsunami. A total of ten tsunami events will be used, including the recent tsunami created by the September 2015 Illapel (Chile) earthquake.

C) Conducting thesis research to determine how canopy phenology influences the competitive outcomes of two invasive species. In the greenhouse, greenhouse benches were built and set up experimental blocks; Throughout the year conducted preliminary experiment and a germination experiment. In the field, maintained shade structures and seeded experimental plots with invasive weeds. Throughout the growing season both abiotic (soil moisture, photosynthetic photon flux density) and biotic (carbon fixation, chlorophyll fluorescence) variables were measured.

D) Analyzing the effects of water stress on native plants: measuring soil moisture content at various topographical positions to analyze how water and other abiotic factors change according to topography; taken measures of native plant growth and stress; Native plants are most stressed in areas with high soil moisture content during periods with little rainfall, when compared to areas that have a lower soil moisture content; However, during rainfall periods, high soil moisture content areas become the most beneficial location for native plants. These results suggest plant water status shifts throughout the growing season. With Southern California’s worsening drought, it is important to understand these shift in water limitation and their effects on native plants. Will be continuing this field experiment in 2016 and have recently started an analogous greenhouse experiment.

E) Salton Sea research project: Faculty mentor meetings on current status of research and guidance on research methods and literature; Communications with Castulo Estrada, Salton Sea Authority board member, several times regarding the current efforts on restoring the Salton Sea; Received and reviewed over 15 documents from Mr. Estrada related to the Salton Sea; Attended Salton Sea meeting on January 20, 2016, and currently planning on attending a Salton Sea Authority meeting in February 2016; Drafted a preliminary literature review report which features the topics to be discussed based on found and reviewed literature; and continuing research to meet literature review deadline of March 11, 2016.

F) Initiatives and Process in Communities for Reducing Water Consumption in California - Focusing on the Landscape Shift: California faces a severe challenge of drought. This research can contribute to find the drives in community, another efficient policy tool besides the financial incentives which cost much, thus promote to reduce
water consumption in urban use, which amount to 10% of total water use in California and is expected to grow according to population increase in the future.

1e. Do your approved grant activities include construction?

Yes ___  No ___ 

If yes; ‘I certify that this construction activity complies with executive order 13202.’

Yes ___  No ___

2a. Choose the year of the most recent previous Title V PPOHA grant your institution has received:  2014

Has your institution experienced any substantial unexpected outcomes as a result of this grant?  YES

If your institution has experienced any unexpected outcomes as a result of this grant, that affect for better or worse its capacity to fulfill the goals of the legislation, describe the outcomes here.

Project MENTORES/PPOHA grant has motivated additional interest and provided collegial incentive for inter-segmental work by promoting the development of additional across-discipline partnerships among college faculty/personnel. The shared goal is serving students effectively while working toward closing the achievement gap for underrepresented students.

Project MENTORES/Cohort 1 Graduate Students:

As of January 2016, there is one cohort of MENTORES students, consisting of ten students (5 males and 5 females). These students were currently enrolled in graduate studies at the time they were identified for MENTORES participation in Spring 2015. Each of these students was notified via email that they would be part of the MENTORES program and would receive a stipend (the first half disbursed in Spring 2015, and the second half in Summer 2015) to enhance their educational experience at Cal Poly Pomona.

In Fall Quarter 2015, Ms. Audrey Aday, the student research assistant for the MENTORES project, interviewed 8 of the 10 MENTORES Cohort 1 graduate students. Ms. Aday has transcribed each of these interviews and plans to schedule the two remaining interviews in early Winter Quarter 2016. Once the appropriate equipment is purchased by the Dr. Behnam Bahr, Principal Investigator, Dr. Anthony Ocampo, Project Evaluator and Ms. Aday will begin analysis of the qualitative data. Each of the graduate students was informed via email that there will be an end-of-year interview in Spring 2016 to assess their evaluation of the MENTORES program.

The preliminary interview data show that these graduate students faced economic and familial barriers to pursuing graduate school. This was particularly the case among the female students. Students noted the decision to attend graduate school was a difficult one given the expectation to work immediately after earning their Bachelor’s degrees and contribute to the family household income. Some students reported that their families “did not understand” why they were attending school. One student noted that her family was stringently against her attendance of a Master’s degree program.

Faculty and Personnel;
The MENTORES research team includes: Dr. Benham Bahr (Principal Investigator), Lily Gossage (Co-Principal Investigator), Patricia Bejarano-Vera (Project Coordinator), who was hired in August 2015. The project also includes Dr. Anthony Ocampo (Project Evaluator), and his student employee, Ms. Audrey Aday. In addition to this core team, there are also faculty identified as experts in water and energy research, per the criteria laid out by the
original grant proposal. As of Fall 2015, there are 25 core faculty experts identified in various departments. The Principal Investigator and Project Coordinator held two informational sessions to recruit additional faculty.

The grant is aimed at increasing the representation of Latinos (and other underrepresented populations) in the STEM fields. We held informational sessions about the objectives of the grant and faculty roles, then discussed purchase policies and the use of equipment, which is a significant component of the grant. Project MENTORES informational discussions also included equipment purchases and the development of online courses; with the expectation that the equipment purchases are to enhance STEM research opportunities for all the students population. As more faculty in the university have been informed about the PPOHA grant, they would like to participate and they have requested whether our grant will allow for them to purchase high performance computers and equipment software. Due to delays of personnel hiring, there are carryover funds that we have asked to be reallocated (please see APR/Budget Section 4.)

Have you encountered any significant challenges during the past reporting period?  **YES**
Tell us about any challenges that you have had during the reporting period or that you anticipate in the coming year which may affect your ability to meet the goals of your grant.  Include, if applicable, your institution's plans to meet these challenges.

The challenges experienced during reporting period included delay in hiring title V staff including: Other Professional Staff (Coordinator, Webmaster, Lab Assistants) were hired later than anticipated hiring timeline; thus, the Project Coordinator duties were not being fulfilled until Coordinator position was filled during last month of Year 1 grant period. Coordinator "delayed" duties included: maintain meetings on shared calendar, keep notes, tracking/reconciling expenditures; record-keeping for all personnel transaction forms, travel authorizations, faculty stipends, student support, and materials and equipment purchases. Planning, organizing, coordinating project objectives for:  1) increasing student success and retention (including outreach to first-generation, low-income, under-represented, and women students); 2) increasing student completion rates for graduate students; therefore, the incumbent should have experience working with college students, and ideally with post-baccalaureate students.

Has the grant facilitated or contributed to bringing additional resources to your institution?  **No**

In what general areas can you recognize opportunities for enhancement of the Title V PPOHA Program?

Allowable activities
We would like the grant to authorize some faculty to be paid by overload basis.
Section 2: Accreditation

Accreditation

Institution's primary accrediting agency.

X Western Association of Schools and Colleges

Has the accreditation of your institution changed since you began the project? No

If yes, please explain in the space below:
Section 3: Grant Activities and Focus Areas

Grant activity carried out during this reporting period in your grant application: Project MENTORES activity goal of increasing institutional capacity for multi-disciplinary graduate training and acquiring equipment for rapid upstart of water/energy nexus applied research. Equipment purchased to date toward fulfilling grant activity:

Photobioreactor with software purchased; for measurement of environmental parameters in batch/continuous growth; pyrosequencing, characterize microbial community responsible for bioremediation of nitrate contaminated groundwaters using wood-chip bioreactors; compare chemical analysis of aerated aquifers, contaminated with petrochemical to better understand bio-geological dynamics of systems.

Innova2System to explore nanostructures of photoelectric energy conversion/water purification materials: nanomaterial structure observation, physical property analysis, students use state-of-art instrument to explore nanostructures photoelectric energy conversion/water purification materials; measure electrical conductivity, high-precision measuring system for PhD research.

Shimadzu TOC LCSH workstation package to provide analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline; to determine whether sulfates inhibit denitrification in system; TOC analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline water; students analyze samples in one sequence without human interruption.

Total $ spent on this activity during the current reporting period: $154,109.93

Focus Area: Academic Quality

<table>
<thead>
<tr>
<th>Title III Part A Legislative Allowable Activities [Note: All listed activities are directly from the legislation.]</th>
<th>Dollars Spent</th>
<th>% of Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase, rental, or lease of scientific or laboratory equipment for educational purposes, including instructional and research purposes.</td>
<td>154,109.93</td>
<td>100%</td>
</tr>
<tr>
<td>Construction, maintenance, renovation, and improvement of classrooms, libraries, laboratories, and other instructional facilities, including purchase or rental of telecommunications technology equipment or services.</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Purchase of library books, periodicals, technical and other scientific journals, microfilm, microfiche, and other educational materials, including telecommunications program materials.</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Support for low-income postbaccalaureate students including outreach, academic support services, mentoring, scholarships, fellowships, and other financial assistance to permit the enrollment of such students in postbaccalaureate certificate and postbaccalaureate degree granting programs.</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Support of faculty exchanges, faculty development, faculty research, curriculum development, and academic instruction.</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Creating or improving facilities for Internet or other distance education technologies, including purchase or rental of telecommunications technology equipment or services.</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Collaboration with other institutions of higher education to expand postbaccalaureate certificate and postbaccalaureate degree offerings.</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>Other activities proposed in the application submitted pursuant to section 514 that contribute to carrying out the purposes of this section, and are approved by the Secretary as part of the review and acceptance of such application.</td>
<td>0.00</td>
<td>0%</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>154,109.93</td>
<td>100%</td>
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</table>
Process Measures for “Project MENTORES activity goal of increasing institutional capacity for multi-disciplinary graduate training and acquiring equipment for rapid upstart of water/energy nexus applied research. Equipment purchased to date toward fulfilling grant activity: Photobioreactor with software purchased; for measurement of environmental parameters in batch/continuous growth; pyrosequencing, characterize microbial community responsible for bioremediation of nitrate contaminated ground-waters using wood-chip bioreactors; compare chemical analysis of aerated aquifers, contaminated with petrochemical to better understand bio-geological dynamics of systems. Innova2System to explore nanostructures of photoelectric energy conversion/water purification materials: nanomaterial structure observation, physical property analysis, students use state-of-art instrument to explore nanostructures photoelectric energy conversion/water purification materials; measure electrical conductivity, high-precision measuring system for PhD research. Shimadzu TOC LCSH workstation package to provide analysis of wastewater, drinking water, pharmacetical water, ground water, surface water, saline; to determine whether sulfates inhibit denitrification in system; TOC analysis of wastewater, drinking water, pharmacetical water, ground water, surface water, saline water; students analyze samples in one sequence without human interruption.”

The following information depicts what the grantee has accomplished in the LAA categories for this Activity.

<table>
<thead>
<tr>
<th>Legislative Allowable Act</th>
<th>Dollars Spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase, rental, or lease of scientific or laboratory equipment for educational purposes, including instructional and research purposes.</td>
<td>$154,109.93</td>
</tr>
</tbody>
</table>

Which of the following activities were carried out under this LAA activity? Check all that apply.

- [X] Laboratory equipment for educational purposes
  - Purchase
  - Rent
  - Lease
- [X] Laboratory equipment for instructional purposes
  - Purchase
  - Rent
  - Lease
- [X] Laboratory equipment for research purposes
  - Purchase
  - Rent
  - Lease

Please provide a short statement describing how your institution used funds in this area during the 2014-2015 academic year.

1) Photobioreactor with software purchased; for measurement of environmental parameters in batch/continuous growth; pyrosequencing, characterize microbial community responsible for bioremediation of nitrate contaminated ground-waters using wood-chip bioreactors; compare chemical analysis of aerated aquifers, contaminated with petrochemical to better understand bio-geological dynamics of systems. 2) Innova2System to explore nanostructures of photoelectric energy conversion/water purification materials: nanomaterial structure observation, physical property analysis, students use state-of-art instrument to explore nanostructures photoelectric energy conversion/water purification materials; measure electrical conductivity, high-precision measuring system for PhD research. 3) Shimadzu TOC LCSH workstation package to provide analysis of wastewater, drinking water, pharmacetical water, ground water, surface water, saline; to determine whether sulfates inhibit denitrification in system; TOC analysis of wastewater, drinking water, pharmacetical water, ground water, surface water, saline water; students analyze samples in one sequence without human interruption. 

Please describe the impact on student academic activities to date.

Number of students impacted 60
Please provide a brief supporting statement:

Project MENTORES activity goal of increasing institutional capacity for multi-disciplinary graduate training and acquiring equipment for rapid upstart of water/energy nexus applied research. Equipment has been purchased during year 1 grant period toward fulfilling grant activity. Consistent with California Governor Brown’s emphasis on developing sustainable water/energy supplies for the state (in the face of severe drought, climate change, and population growth), is the university’s pledge for meeting California’s goal to reduce water/energy consumption by 20% within the next six years. Project MENTORES/PPOHA will greatly enhance Cal Poly Pomona’s efforts to meet this ambitious goal by harnessing the full intellectual power of STEM faculty and graduate students working on the problem of water/energy sustainability on campus while meeting urgent societal needs.
Section 3: Grant Activities and Focus Areas

Grant activity carried out during this reporting period in your grant application: **Project MENTORES activity goal to provide financial aid, research stipend and travel support for students.**

Total $ spent on this activity during the current reporting period: **$27,000.00**

Focus Area: **Student Services and Outcomes**

<table>
<thead>
<tr>
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Process Measures for “Project MENTORES activity goal to provide financial aid, research stipend and travel support for students.”

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<td>$27,000.00</td>
</tr>
</tbody>
</table>

Which of the following activities were carried out under this LAA activity? Check all that apply.

- [ ] Outreach activities
- [ ] Academic support services
- [X] Mentoring
- [X] Scholarships
- [X] Fellowships
- [ ] Other financial assistance to permit the enrollment of such students in postbaccalaureate certificate and postbaccalaureate degree granting programs

Please provide a short statement describing how your institution used funds in this area during the 2014-2015 academic year.

STUDENT STIPENDS:
Criteria for selection of students for MENTORES support: 1) Full-time graduate student; 2) Hispanic, Minority (including women), Low-Income; 3) Recommended by the faculty on the MENTORES Project (faculty must provide mentoring, participate in MENTORES feedback sessions/surveys, must sign the informed consent form); 4) Involvement with water or energy research; 5) Participation in MENTORES feedback sessions/surveys (student must sign the informed consent form); 6) Presentations at MENTORES Conferences, Poster Showcases, and meetings.

Nine students were approved to receive stipends; these were based on faculty recommendation. Each received $1,500 in Spring 2015; another $1,500 to be awarded for Summer 2015 based on student progress/performance in Spring 2015 (i.e., course stop-out, unit reduction, incomplete research work). In order to fully expend stipend amount, a total of 16 individual stipends will have been awarded for Year 1 (9 for Spring 2015 + 7 for Summer 2015). Support was provided to: Biological Sciences (via Jonathan Nourse), Civil Engineering (via Monica Palomo), Geological Sciences (via Erin Questad), Urban and Regional Planning (via Dohyung Kim).

Please describe the impact on student attainment, student services and academic activities to date.

Number of students impacted 9

Please provide a brief supporting statement:

Fellowships/Stipends:
Fellowship application facilitated via AcademicWorks (Cal Poly Pomona on-line scholarship submission system). There were eligible graduate students who applied and faculty who submitted/uploaded recommendation letters. Deadline was extended to accommodate student; the deadline was extended, but student never applied. As of May 31, 2015, we have six applications. Since we did not move forward on these fellowships for Spring 2015, we will award them for Summer 2015. We cannot award them for Fall 2015 since October 1, 2015 is the beginning of the project budget period for Year 2.
Section 3: Performance Measures - Programmatic

Please list any new courses your institution added as a result of this grant during the current academic year.

Please list any new academic concentrations your institution added as a result of this grant during the current academic year.

Please list any new research initiatives your institution added as a result of this grant during the current academic year.
### Section 3: Performance Measures - Students

<table>
<thead>
<tr>
<th>Performance Measures: Students</th>
<th>Number of Students at the beginning of the Year</th>
<th>Number of Students at the End of the Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students participating in independent research, during the most recent complete academic year.</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Number of students participating in research with faculty, during the most recent complete academic year.</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Number of students presenting at conferences, during the most recent complete academic year.</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Number of students writing for publication, during the most recent complete academic year.</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Section 4: Project Status

Continued funding requires evidence of substantial progress towards meeting the activity objectives. Below is a list of objectives for each activity carried out over the current reporting period of the grant.

ACTIVITY: Project MENTORES activity goal of increasing institutional capacity for multi-disciplinary graduate training and acquiring equipment for rapid upstart of water/energy nexus applied research. Equipment purchased to date toward fulfilling grant activity: Photobioreactor with software purchased; for measurement of environmental parameters in batch/continuous growth; pyrosequencing, characterize microbial community responsible for bioremediation of nitrate contaminated ground-waters using wood-chip bioreactors; compare chemical analysis of aerated aquifers, contaminated with petrochemical to better understand bio-geological dynamics of systems. Innov2System to explore nanostructures of photoelectric energy conversion/water purification materials: nanomaterial structure observation, physical property analysis, students use state-of-art instrument to explore nanostructures photoelectric energy conversion/water purification materials; measure electrical conductivity, high-precision measuring system for PhD research. Shimadzu TOC LCSH workstation package to provide analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline; to determine whether sulfates inhibit denitrification in system; TOC analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline water; students analyze samples in one sequence without human interruption.

On-Schedule Activity Objectives

#1: Increase the year-to-year admit yield of Hispanic low-income students in STEM graduate programs 5% over the previous year for each year of the five year period.

#2: Increase the proportion of Hispanic low-income students who enroll in STEM graduate programs from 18% to 25% over the course of the five-year period.

#3: Increase the proportion of full-time graduate students at Cal Poly Pomona from 65% to 85% over the course of the five-year period.

ACTIVITY: Project MENTORES activity goal to provide financial aid, research stipend and travel support for students.

On-Schedule Activity Objectives

Objective #1: Increase the year-to-year admit yield of Hispanic low-income students in STEM graduate programs 5% over the previous year for each year of the five year period. Objective #2: Increase the proportion of Hispanic low-income students who enroll in STEM graduate programs from 18% to 25% over the course of the five-year period. Objective #3: Increase the proportion of full-time graduate students at Cal Poly Pomona from 65% to 85% over the course of the five-year period.
## Section 4: Budget Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Carryover Balance from Previous FY</th>
<th>Actual Budget</th>
<th>Carryover Balance from Previous FY+Actual Budget</th>
<th>Expenditures</th>
<th>Non-Federal Expenditures</th>
<th>Carryover Balance into next year</th>
<th>% Carryover Balance into next year</th>
<th>Next Year’s Actual Budget</th>
<th>Changes (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$0.00</td>
<td>$173,033.00</td>
<td>$173,033.00</td>
<td>$37,842.19</td>
<td>$0.00</td>
<td>$135,190.81</td>
<td>78.1%</td>
<td>$170,207.00</td>
<td>No</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>$0.00</td>
<td>$43,212.00</td>
<td>$43,212.00</td>
<td>$11,218.06</td>
<td>$0.00</td>
<td>$31,993.94</td>
<td>74.0%</td>
<td>$47,436.00</td>
<td>No</td>
</tr>
<tr>
<td>Travel</td>
<td>$0.00</td>
<td>$3,340.00</td>
<td>$3,340.00</td>
<td>$38.41</td>
<td>$0.00</td>
<td>$3,301.59</td>
<td>98.9%</td>
<td>$6,721.00</td>
<td>No</td>
</tr>
<tr>
<td>Equipment</td>
<td>$0.00</td>
<td>$262,361.00</td>
<td>$262,361.00</td>
<td>$154,109.93</td>
<td>$0.00</td>
<td>$108,251.07</td>
<td>41.3%</td>
<td>$131,402.00</td>
<td>No</td>
</tr>
<tr>
<td>Supplies</td>
<td>$0.00</td>
<td>$5,675.00</td>
<td>$5,675.00</td>
<td>$565.71</td>
<td>$0.00</td>
<td>$5,109.29</td>
<td>90.0%</td>
<td>$6,250.00</td>
<td>No</td>
</tr>
<tr>
<td>Contractual</td>
<td>$0.00</td>
<td>$1,600.00</td>
<td>$1,600.00</td>
<td>$500.00</td>
<td>$0.00</td>
<td>$1,100.00</td>
<td>68.8%</td>
<td>$4,600.00</td>
<td>No</td>
</tr>
<tr>
<td>Construction</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>0.0%</td>
<td>$0.00</td>
<td>No</td>
</tr>
<tr>
<td>Endowment</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>0.0%</td>
<td>$0.00</td>
<td>No</td>
</tr>
<tr>
<td>Scholarships</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>0.0%</td>
<td>$0.00</td>
<td>No</td>
</tr>
<tr>
<td>Student Stipends</td>
<td>$0.00</td>
<td>$68,400.00</td>
<td>$68,400.00</td>
<td>$27,000.00</td>
<td>$0.00</td>
<td>$41,400.00</td>
<td>60.5%</td>
<td>$106,300.00</td>
<td>No</td>
</tr>
<tr>
<td>Other</td>
<td>$0.00</td>
<td>$16,873.00</td>
<td>$16,873.00</td>
<td>$1,859.24</td>
<td>$0.00</td>
<td>$15,013.76</td>
<td>89.0%</td>
<td>$10,600.00</td>
<td>No</td>
</tr>
<tr>
<td>Total</td>
<td>$0.00</td>
<td>$574,494.00</td>
<td>$574,494.00</td>
<td>$233,133.54</td>
<td>$0.00</td>
<td>$341,360.46</td>
<td>59.4%</td>
<td>$483,516.00</td>
<td>No</td>
</tr>
</tbody>
</table>
Section 4: Budget Summary Narrative

Please explain budget changes, as needed, particularly the use of funds from cost savings, carryover funds and other expanded authorities changes to your budget. Provide an explanation if you are NOT expending funds at the expected rate. Describe any significant changes to your budget resulting from modifications of project activities.

1a. Have all funds that were to be drawn down during this respective performance period been drawn down? **No**

1b. If no, please provide a description of the funds (i.e. the amount) that have not been drawn down in the G5 system, and WHY they haven’t been drawn down.

Other Professional Staff (Coordinator, Lab Assistants) were hired later than anticipated hiring timeline; thus, the Project Coordinator duties were not being fulfilled until Project Coordinator was hired in last month of Year 1 grant period. Project Coordinator “delayed” duties included: maintain meetings on shared calendar, keep notes, tracking/reconciling expenditures; record-keeping for all personnel transaction forms, travel authorizations, faculty stipends, student support, and materials and equipment purchases. Planning, organizing, coordinating project objectives for: 1) increasing student success and retention (including outreach to first-generation, low-income, under-represented, and women students); 2) increasing student completion rates for graduate students; therefore, the incumbent should have experience working with college students, and ideally with post-baccalaureate students. Carryover balance to next is $341,360; explanation and project budget category breakdown for use of funds explained in question 3b.

2a. Have your project activities had to be modified? **No**

2b. If YES, please describe any significant changes to your budget resulting from modification of project activities.

3a. Did you have any unexpended funds at the end of the performance period? **Yes**

3b. If you did, explain why, provide the amount, and indicate how you plan to use the unexpended funds (carryover) in the next budget period.

The coordinator was hired later than anticipated hiring timeline. Coordinator duties were not being fulfilled until Coordinator was hired in August 2015. This also affected the hiring of the Webmaster, travel authorizations, equipment and materials purchases.

Plan for use of unexpended/carryover funds:
1. $108,251. Equipment per approved Project MENTORES budget narrative is already in the process of being purchased.

2. $41,400. The Project MENTORES Fellowships will be added to the second year and 7 students will be awarded (4 from first year and 3 from second year, and the awards will be announced soon).

3. $8,000. We will allocate funding for development of additional online/hybrid graduate course.

4. $20,301. Travel will be added to the second year. This allocation will enable PI, faculty and students to participate in STEM conferences, currently the travel allocation for faculty is only $238/year.

5. $60,000. Cluster of Hi Performance Computers (HIPC) for Graduate students in the Project MENTORES as well as other Graduate students in STEM.


7. $50,000. Additional research equipment for new STEM faculty. We have about 25 faculty that now want to do research and they need state-of-the-art research equipment.

8. $6,212. Contractual.

9. $10,000. Supplies.

10. $7,183. Other

4a. Do you anticipate any changes in your budget for the next performance period that will require prior approval from the Department (as designated by EDGAR, 34 CFR 74.25 and 80.30, as applicable)? **Yes**
4b. Describe any anticipated changes in your budget for the next budget period (see EDGAR, 34 CFR 74.25 and 80.30, as applicable).

For our PPOHA project, we are requesting that personnel of MENTORES be allowed to be compensated on overload/over-time compensation for their work. The California State University (CSU) system has a requirement that if we pay anyone above 100% effort, we must get agency approval to do so. We request approval from DE for use of funds for these personnel overload.

Additional Information

5a. Do you wish to make any changes in the grant’s activities for the next budget period? No

5b. If yes, describe any changes that you wish to make in the grant’s activities for the next budget period that are consistent with the scope, objectives, and/or personnel of your approved application. (*Further approval for these proposed changes may be required. Please contact your program officer.)

6a. Were there any changes to key personnel during this reporting period? Yes

6b. If yes, did you receive approval from your Program Officer? Yes

7. Have you met your goals and objectives as outlined in your approved activities for this reporting period? Yes, No, or partially. Partially

If no, please explain.

8. Provide any other appropriate information about the status of your project including any unanticipated outcomes or benefits from your project in the space below;
Section 5: Technology

Grant activity carried out during this reporting period in your grant application:

Creating or improving facilities for Internet or other distance learning academic instruction capabilities, including purchase or rental of telecommunications technology equipment or services.

No money was spent on this activity during the current reporting period.
Section 6: Institutionalization

What are your institution’s plans to institutionalize or assume the costs incurred from the projects and activities created from this grant? The desire is for there to be continuity in the work begun by this grant and the work that is done in the future. Detail your plans to accomplish that goal.

1a. Complete the chart below detailing your plans to institutionalize the costs created by the activities of your project. In the three columns below, each activity name from the objectives is to be listed, then an approved line item (i.e. teacher salary), then actual financial cost.

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Approved line items*</th>
<th>Financial cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 1</strong>- Project MENTORES activity goal of increasing institutional capacity for multi-disciplinary graduate training and acquiring equipment for rapid upstart of water/energy nexus applied research. Equipment purchased to date toward fulfilling grant activity:</td>
<td>Equipment</td>
<td>$154,109.00</td>
</tr>
<tr>
<td>Photobioreactor with software purchased; for measurement of environmental parameters in batch/continuous growth; pyrosequencing, characterize microbial community responsible for bioremediation of nitrate contaminated ground-waters using wood-chip bioreactors; compare chemical analysis of aerated aquifers, contaminated with petrochemical to better understand bio-geological dynamics of systems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innova2System to explore nanostructures of photovoltaic energy conversion/water purification materials: nanomaterial structure observation, physical property analysis, students use state-of-art instrument to explore nanostructures photovoltaic energy conversion/water purification materials; measure electrical conductivity, high-precision measuring system for PhD research.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shimadzu TOC LCSH workstation package to provide analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline; to determine whether sulfates inhibit denitrification in system; TOC analysis of wastewater, drinking water, pharmaceutical water, ground water, surface water, saline water; students analyze samples in one sequence without human interruption.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutionalization plan- Activity 1</td>
<td>The College of Engineering has agreed to maintain the</td>
<td></td>
</tr>
</tbody>
</table>
equipment and make it available for research and instructional use.

<table>
<thead>
<tr>
<th>Activity 2 - Project MENTORES activity</th>
<th>Student Research Stipends</th>
<th>$27,000.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>goal to provide financial aid, research stipend and travel support for students.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Institutionalization plan - Activity 2

After our pilot program of supporting the Cal Poly Pomona, Learning Resource Center with a graduate student to assist graduate students with their thesis, project/proposal, publication, and developing/updating Project MENTORES Student Handbook, Cal Poly Pomona will create a permanent position for continuation/institutionalization of program services toward assisting graduate students.

1b. In the space provided below please explain any notable experiences you have had in institutionalizing this project. Please list any considerable challenges, successes, or failures.

After we supported some of the Project MENTORES students, we learned that some of the graduate students were not connected with their faculty advisor and thus they were under the impression that Project MENTORES grant was just to provide them with financial support. Therefore, we have developed criteria and procedures and will provide MENTORES Orientation Workshops for Graduate students and also provide Faculty with MENTORES training workshops to understand diversity and expectations within Project MENTORES.