

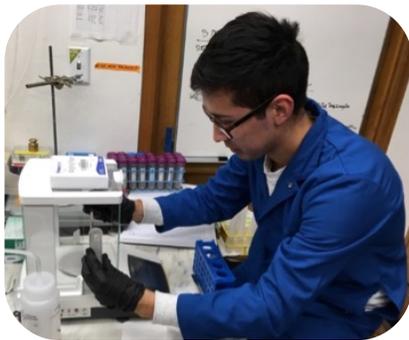
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# The Berkeley Collegium

## *Narrowing the Gap Between Teaching and Research* Grants Program

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### Assessment of the Third Cohort of Grant Recipients (2017-2019)



### Projects Awarded

The third call for proposals in this grants program went out in the spring of 2017, and resulted in our funding three projects for the 2017-2019 period. Titles, grant recipients, and demographic-related details of each project are provided in the table below.

<b>Title</b>	Sustainable Soils Research Incubator	Y-PLAN ( Youth – Plan, Learn, Act, Now) – Undergraduate Action Research Initiative	Exploring the Etruscans at UC Berkeley
<b>Recipient</b>	Celine Pallud/ Sarick Matzen Environmental Science, Policy, and Management	Deborah McKoy Graduate School of Education	Lisa C. Pieraccini Classics
<b>Award Amount</b>	\$19,950	\$20,000	\$14,409
<b># of students impacted 2017-2018</b>	9	25	5
<b># of students impacted in 2018-2019</b>	6	30	10
<b>Sampling of enrolled majors</b>	Civil and Environmental Engineering, Applied Math, Geography,	Education, Urban Studies, Geography	History of Art, Ancient History & Mediterranean Archaeology, Classics
<b>Gender distribution (% women)</b>	Average of 75% across the 2-year period	Average of 70% across the 2-year period	100%

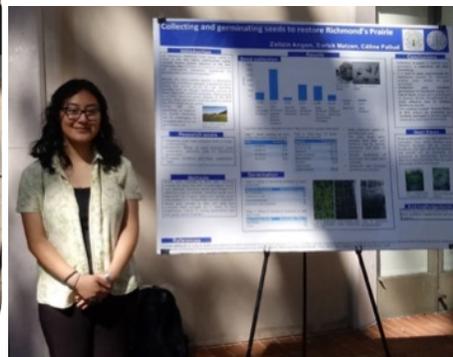
### Progress Reports and Assessment

We obtained brief progress reports (i.e., short narratives and budgetary updates) from the awardees at the end of each of the 4 semesters of the grant period, and then hosted a campus-wide forum in the spring of the final semester of the second year of the grant period (April, 2019) where each of the awardees in this third cohort presented their progress and/or outcomes of their project. This report reflects a compilation of the data obtained through all of the assessment methods used.

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# Sustainable Soils Research Incubator

**Celine Pallud & Sarick Matzen**  
**(Environmental Science, Policy, & Management)**



## Project Description

Decades of industrial activity have left a legacy of soil pollution in urban areas, including at UC Berkeley. In this project, we proposed leveraging this legacy of contamination to build a cohort of environmental problem solvers with real-life experience restoring soils. Berkeley students are strongly interested in sustainable soil remediation methods, rightly viewing these techniques as a compelling mixture of environmental sustainability, community appeal, and green job training. Despite this undergraduate demand for hands-on soil restoration training, current soils classes at Berkeley are limited to lecture and discussion sections, with no departmental support for laboratory exercises. At the same time, we found that students who were gaining laboratory and field experience through existing research internship programs wanted a more enriching, context-based experience. Finally, in the context of campus initiatives to increase diversity, inclusion, and equity for students from historically marginalized communities, we wanted to formalize an environmental science program that would be accessible to students with diverse and intersectional identities and backgrounds.

The project aimed to develop a Sustainable Soils Research Incubator (SSRI) whereby undergraduate students would receive intensive training in field, greenhouse, and laboratory research to develop soil remediation methods. In this Research Incubator, the goal was to link classroom instruction in remediation methods with thorough experience in scholarly research, from question formation to results communication, to help students answer important questions about how to increase remediation efficiency.

- Students were recruited through soils courses and existing internship programs
- With graduate student support, cohorts spent 2 semesters participating in the research process through an on-going, large scale field study. Students engaged 4-8 hours per week during group and individual field and lab sessions to collect and analyze soil, plant tissue, and water samples.
- Students met every 2-3 weeks for 1.5 hour sessions to learn about sustainable remediation principles, access and present primary literature, design experiments and formulate hypotheses, learn the R programming language and use R to analyze and visualize data.
- Students were mentored within and beyond the classroom, meeting with faculty and graduate students to learn how to apply to graduate school, discuss challenges and opportunities associated with being students from underrepresented groups, and explore post-graduate career options

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## Learning Outcomes & Goals

- Foster community for students from historically marginalized groups in science
- Collaborate as members of a research team
- Gain a suite of environmental science field and laboratory research skills
- Explain the science behind the practice
- Articulate results to science-literate and general audiences
- Be prepared to conduct their own research in the future

## Reflections From & Impact on Celine Pallud/Sarick Matzen

- Large research projects allow the opportunity to include numerous students, but because students might focus on select parts of the overall project, the classroom-based portion of the program becomes even more meaningful in terms of creating overall context.
- Well-defined, repetitive tasks allow students to build confidence and ownership, paving the way for more intricate and independent work.
- Students want more of everything – more involvement with more parts of a project, more R!
- Sarick Matzen found that this program was a fulfilling way to use his position as a white transgender man in the sciences to hold space for and create community with students with a variety of identities, backgrounds, experiences, and interests.
- Céline Pallud found that this program allowed her to connect with students beyond typical student-professor interactions and facilitated mentorship opportunities.

## Course Evaluations

Students answered assessment questions with a Likert scale where 1 = strongly disagree and 5 = strongly agree. n = 12 across 2 years.

	Mean initial	Mean final
I have a good understanding of what makes remediation sustainable.	3.7	4.4
I understand and can apply research methods used to develop soil remediation techniques.	2.7	4.1
I understand the soil chemical and physical processes involved in soil remediation.	3.0	4.2
I can carefully and efficiently perform research tasks used to develop soil remediation techniques.	3.0	4.4
I am comfortable:		
• Developing a hypothesis/research question.	3.7	4.5
• Designing an experiment.	3.1	4.0
• Processing data.	3.2	4.1
• Creating presentation-quality graphs.	3.6	4.2
• Giving an oral presentation to a scientific audience.	2.9	4.2
• Writing about my research for a general audience.	3.5	4.7
I feel good about my study and research skills.	3.5	4.4
I think research is useful for solving environmental problems.	4.9	5.0
When I have a question, I can find the answer (by looking in research journals, doing an experiment, asking somebody else...).	4.1	4.6

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I have a positive attitude towards science.	4.8	5.0
There is a place for me in science now.	4.1	4.4
I want to have a career in science and/or environmental sustainability.	4.6	4.8
If I want a career in science and/or environmental sustainability, I will be able to find one.	3.6	4.3

### Sustainability and/or Scalability

The SSRI benefited from access to a large field-scale research project, but could be replicated across multiple smaller projects sharing a common theme, perhaps spanning multiple lab groups. Funding requirements include research expenses as well as stipend coverage for the graduate student who functions like a Graduate Student Instructor. Funding will be sought from campus sources including The Green Initiative Fund to continue the program.

### Student Feedback

From undergraduate students (feedback collected anonymously)

- Personally I didn't have field or lab experience prior to joining SSRI. Since my major was more policy oriented, I didn't have classes where we did experiments or focused on the physical environment, which was something that I wanted to link to policy. SSRI demystified the research process through hands on assistance and discussions. A lot of the research process gets lost when it reaches the public and being able to see the different stages (grant writing, planning, development, execution) made me realize that while its complicated, it's definitely something I can do. If I hadn't had the mentorship ... I would still be intimidated and would think research wasn't for me. It also helped me narrow down future career plans.
- SSRI was a great resource for me to learn how I can fit in environmental sciences and how I can create an impact in this field.
- SSRI really helped to give me the full picture of what we were doing in lab. It's very helpful to see the results of past experiments to get a sense of why we are doing certain activities in lab, as well as methods used to process, analyze, and present the data as it would be to a scientific community.
- SSRI has given me a lot of knowledge regarding sustainable bioremediation on both a scientific and ethical level. I also think it has been valuable to learn about the mechanisms of arsenic transport in ferns and SSRI has interested me in learning even more about this. Learning about R code and statistical tests was also valuable and will hopefully be useful in my future.
- [SSRI] provided useful insight into both graduate school and research in general. Helped me understand both in ways that classes don't quite provide.
- SSRI is important to me because I got to learn a bunch of lab skills and work on multiple levels of research, from soil grinding to bringing acid digests of the soil to volume. This helped me to understand how research is conducted better and to appreciate the complexity and amount of work that goes into a single published paper.
- I enjoyed the student research presentations at the end of the program. Preparing for my presentation really helped me think critically about my own research/ personal interests for my future. Hearing what other students are passionate about is also very motivating and insightful.
- I enjoyed the sessions when we processed data in RStudio! I love seeing how other people organize their raw data for statistical analysis and learning more about different packages and functions.
- [I] enjoyed the exposure to R and the mechanics behind the research we were assisting on -- specifically having to read the papers that informed the experiments that we were working on.

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# Y-PLAN (Youth – Plan, Learn, Act, Now) – Undergraduate Action Research Initiative

Deborah McKoy (Graduate School of Education)



## Project Description

The Y-PLAN Action Research course offered an exciting and authentic, community-based research experience to 55 interdisciplinary undergraduate students across education, city planning, geography, urban studies and math. While UC Berkeley students have been engaging in the Y-PLAN (Youth – Plan, Learn, Act, Now) civic engagement methodology for over a decade, this was the first time they were prepared to serve as investigators to examine whether and how the high school students developed a deeper sense of agency and ownership of their communities through a unique and high-profile urban resiliency planning initiative. Over the course of two years students were engaged in two action research projects:

### *2017 - 2018: How can young people inform Resilient Cities across the Bay Area?*

- Engaged over 1,000 young people and civic/community partners
- Worked with over 32 K-12 classrooms across 5 Bay Area cities
- Generated 72 Resilient Community Development Proposals
- See [FULL LIST](#) of project questions tacked by high school students, and supported by 25 UC Berkeley undergraduate students

### *2018 - 2019: How can your school and community thrive in the year 2050? Consider impacts to and from: Transportation, Land Use and Housing, Economic Development, Resilience.*

- Engaged over 700 young people and civic/community partners

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- Worked in 34 classrooms in 23 schools across 12 cities in the Bay Area and Sacramento
  - Generated 42 urban planning proposals (projects in this second year were larger and engaged more students than the first RBD project year)
  - See [FULL LIST](#) of project questions and school alignment.

## Learning Outcomes & Goals

1. **Create a new section/course for the Education Minor on community based action research**
  - a. New cross listed course rather than a new section (CP 190 + Educ 141b) lifting up the role and perspective of education students in community based research. This was a shift from the original goal of creating a section within the Education 141 class to ensure students were able to participate in the class that no longer fit the parameters of Educ 141.
  - b. As an action research course, undergraduate students learned a wide range of research skills using a new set of Y-PLAN course tools to support them. In particular:
    - **A new Y-PLAN Database** was created to document all aspects of the Y-PLAN action research
    - **Digitized field notes** - as part of the database, students entered their field notes into an on-line form with an agreed upon set of questions. These forms were uploaded to the general database to deepen the level of data collected for each Y-PLAN classroom. All students were able to refer back to this data to do their interim and final research write ups.
    - **Authentic Assessments** - Y-PLAN aligns with k-12 authentic assessment measures ranging from student policy briefs to final public presentations. Using common rubrics, Y-PLAN undergraduate researchers were able to learn a great deal about overall student learning through these instruments and experiences and incorporate this analysis into their final research reports.
2. **Engage education undergraduates to serve as research team for Y-PLAN k-12 classrooms**

The Berkeley Collegium grant led to an entire shifting of the Y-PLAN class away from more traditional mentoring of local high school students in community development toward actually engaging as co-researchers documenting the insights and outcomes of the Y-PLAN work.
3. **Forge new teaching partnerships with UCB and local schools, districts and communities**

The Y-PLAN action research projects deepened and expanded the collaborations with local school districts including Oakland, West Contra Costa, San Francisco, East Palo Alto, and several smaller districts in the South Bay and Peninsula.
4. **Document outcomes/impacts among participants:** Y-PLAN undergraduate students supported the overall documentation of learning outcomes for both youth and adult Y-PLAN participants. These student and community outcomes were documented across the “Y-PLAN Double Bottom Line”
  - a. **College, Career and Community/Civic Readiness (k-12 student learning):** Teaching partners report their Y-PLAN students develop the following 21st Century Skills: Collaboration, Critical Thinking, Communication and cultivate sense of agency
  - b. **Building Healthy, Equitable and Joyful Cities (adult learning):** *Place/Policy Change:* Civic leaders and partners reported the Y-PLAN city planning policy proposals were incorporated into a range of proposals, i.e., Mayor of Oakland adopted student recommendations into the design of the College Center at Skyline High and the Oakland Sustainability Director is in the process of incorporating recommendations into their final

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Climate Action Plan.

- c. **Systems Change:** The Metropolitan Transportation Commission (MTC)/Association of Bay Area Governments, San Francisco Planning Department and other local municipalities are working to institutionalize the Y-PLAN methodology and incorporate children, youth and schools into formal long range planning processes. These processes will impact local communities over the coming 20 years by determining the infrastructure allocations in housing and transportation across the region.

## Reflections From & Impact on Deborah McKoy

The two years of funding was very impactful on my ability to deepen the partnership with the education minor in three powerful ways:

### **(1) Increase visibility across the education minor about the Y-PLAN action research course and project.**

Education minor Y-PLAN students in both years assumed leadership roles both in the course and in the Education Department as they saw Y-PLAN as an important opportunity to provide a different equity and community based research course offering.

- Two students from the first year continued to participate in the Y-PLAN course the second year as field leaders. The Education Minor was able to provide a student leader stipend to one student and others continued their Y-PLAN school work by securing independent study credits.
- In May 2019, one Y-PLAN undergraduate student and Education Minor, was invited to speak at graduation on his Y-PLAN experience. As a Rhetoric Major and Education Minor, he offered a powerful and important message about what he learned through Y-PLAN.
  - See [Hugo Camacho Graduation Speech](#) - CC+S Blog



**(2) Increase the rigor and quality of the course.** The Collegium funding support provided the opportunity to shift the Y-PLAN course from a community fieldwork experience to an actual action research partnership with students. I have taught this course for nearly 20 years at UCB, but the quality and impact of the work have greatly increased as I was able to work collectively with students to document the impact and change among participating k-12 student populations.

**(3) Highlight how equity and inclusion concerns in our cities and schools are the driving force behind Y-PLAN university-school-community partnerships.** The two Y-PLAN city planning projects these past two years directly addressed the growing crises from escalating gentrification across the San Francisco Bay Area region and the impact on young people and schools. As over 85% of our k-12 student populations are low income, communities of color, such socio-economic changes have had a devastating impact on families forcing higher rates of displacement than ever before recorded. Y-PLAN undergraduate students often hear about this happening but rarely had the opportunity to engage directly with local schools and students to learn about and document their lived experiences and every day trauma that is resulting from regional economic shifts. As described by students below, they expressed great gratitude and appreciation for the opportunity to be engaged in these issues in proactive, constructive ways rather than just learning about such changes in the news.

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## Course Evaluations

The course evaluation averages (on a 1-7 point scale) for two years are below. The shift from a community fieldwork class to an action research course did improve in terms of curriculum, content, and organization from year one to year two (this was also reflected in student evaluations):

### 2017 - 2018

- Teacher Effectiveness - 5.8
- Course and Format - 5.5 (As a new format and course, the second year was a significant improvement from the first year – see below)

### 2018 - 2019

- Teacher Effectiveness - 6
- Course and Format - 6

## Sustainability and/or Scalability

The Berkeley Collegium grant has truly led to a transformation of the Y-PLAN course that will be sustained in both education and city planning departments for many years to come. After many years as a community based fieldwork course, we were able to deepen the rigor and expectations for students that also met with organizational partners and policy leaders' needs and priorities on and off campus. In addition to winning the UC Berkeley Chancellor's Award for Public Service in 2018, the Y-PLAN work secured additional funding from local school districts and government agencies aware and eager to support the increased level of research and documentation the Y-PLAN partnership now offers. While we continue to seek UC Berkeley department-level support for the education minor course, we are very pleased to be able to continue the course through the UC Links grant in the Graduate School of Education as well as additional outside grants.

## Student Feedback

*What is the most important thing you're taking away from your Y-PLAN action research experience?*

- As an Ed Minor, I needed more actual experience in schools and communities. Through Y-PLAN, I was able to put theory into practice. I was able to teach and learn about action research. Working side by side our students, we learned how to make Oakland more resilient and what that meant for schools and my students.
- It was one of the most unique and incredible courses I have ever taken! It allowed me to leave the bubble and actually learn from, document and understand lived experiences of local youth.
- Taking this course within such a well-designed program such as Y-PLAN, has been such a privilege. Deb is an incredible professor with so much passion and commitment to this work and class. I love that we are able to directly apply and use what we learn about research and youth/education in this course in Oakland schools
- Education and social justice issues were powerful. This class gave African American and Latino students a platform, it was beautiful.
- Given the opportunity to make a difference and use our position as UCB students to make a difference for others.
- Super hands-on with fieldwork. So glad I could finish off my minor with this course. I thought the fieldwork would be super stressful but it really wasn't, it was the heartbeat of this course.
- I loved the practical experiences and how interactive the course is in general. I loved getting to work with others in different ways, this is so rare to be able to engage with different people, communities and issues in course curriculum.

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*How could the program improve next year?*

- More clarity around fieldwork and expectations - and how much time we are expected in the field.
- More clarity between being in the classroom as mentors vs. researchers
- I would like a digital syllabus that gets updated
- More time to talk with students about college and their futures. I know it's not a main goal of the course but it's really important and impactful for the young people.
- I think there should be more information about the projects and how students should be involved

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## Exploring the Etruscans at UC Berkeley

Lisa C. Pieraccini (History of Art)



### Project Description

At the turn of the 1900s, Phoebe A. Hearst set out to bring Classical antiquities to UC Berkeley for the benefit of students, faculty and the public at large. As part of this initiative, thousands of artifacts from the ancient Mediterranean world made a trans Atlantic journey to the budding UC campus as early as 1901. A significant collection of Etruscan artifacts (pre-Roman people of ancient Italy) were some of the very first objects to arrive from the Mediterranean. When I applied for the Berkeley Collegium Grant in 2017, I was under the impression that there were just over 1,000 Etruscan objects in the Hearst Museum. The collection has never been published as a whole or exhibited and up until recently, there was no database available for all the artifacts. Thanks to the Collegium Grant I was able to work with a Graduate Student Researcher (Rebecca Levitan) and together we began investigating the history of the collection (the exact Etruscan sites in Italy where the objects were acquired). We learned a great deal about the acquisition history as well as the overall desire on the part of Phoebe A. Hearst and her art dealer, Alfred Emerson, to form a 'teaching collection' for students. During the span of just over a year we were able to discover that the Hearst Museum holds close to 4,000 Etruscan artifacts – the collection is larger than the Metropolitan Museum and J. Paul Getty Museum combined! In fact, we now know, thanks to this Collegium research, that it is the largest Etruscan collection in of North America. Due to the Collegium Grant, I was able to teach a new seminar dedicated to 'student study' of the collection: *Exploring Etruscans at the Hearst Museum*, was a seminar style research class that took place in the fall of 2018. Students met weekly in the basement of the Hearst Museum (a maximum of ten students were enrolled). The outcome of this seminar was profound – students were able to study, first hand, objects that have never been studied!

### Learning Outcomes & Goals

UC Berkeley's Etruscan collection arrived with provenience records for almost all the artifacts acquired (thanks to Alfred Emerson) -- but a century of new knowledge and excavations have emerged since the time of acquisition. Students read the most recent publications of similar Etruscan objects from the same sites and looked at excavation reports for comparanda. This allowed them to comprehensively bridge the gap of knowledge and better place the objects in the larger record of Etruscan material culture. Students examined the artifacts with a series of questions in mind: how was the artifact made, how was it used and who owned it? Students chose select groups of artifacts, consulted with the Bancroft library archives and the Hearst archives for information which enabled them to write up-to-date descriptions

and analysis of the artifacts. Each student prepared a research paper and a formal presentation. The class was highly innovative (no other US University holds as many Etruscans artifacts). It was also cost effective and had a profound and direct impact on undergraduate research. At the end of the semester, there was a formal presentation of the collection specially made for the upper administration of UC Berkeley (this was done to educate the university about a collection that is extremely significant and virtually unknown to the public at large). To this end, the class meaningfully connected students to research and the University to its own collection.



## Reflections From & Impact on Lisa C. Pieraccini

What I find so significant about this project is that Phoebe A. Hearst and Alfred Emerson were concerned already in 1905 that Berkeley's Etruscan collection was not being used to the fullest, stating that it was inaccessible to the public (Emerson, *Sunset Magazine*, 1905). Over one hundred years have passed, and sadly, the collection as a whole is unpublished and not used as a learning tool for students. It is clear to me that the collection could become a significant hub for undergraduate and graduate research dedicated to the material culture of ancient Italy. This Etruscan collection greatly complements the newly founded (but not state funded) Del Chiaro Center already at UC Berkeley. The Del Chiaro Center is dedicated to the study of ancient Italy with an emphasis on Etruscan and Roman studies. The research possibilities are truly endless, from digitizing the collection to a full publication, there are broadly scoped as well as detailed opportunities for undergraduate as well as graduate students. The Hearst Museum has a relic at its finger tips and the university a unique opportunity. For example, this Etruscan collection holds at least eight intact tomb groups from the 7<sup>th</sup>-5<sup>th</sup> centuries BCE.

Some of these pieces will hopefully be showcased at the upcoming international Etruscan exhibit coming to the San Francisco Fine Arts Museum (Legion of Honor) in the spring 2021. I am dedicated to publishing this collection and to offering more research based seminars in the future.

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## Course Evaluations

The course was evaluated from a 1-7 point-scale and the average rating for teaching effectiveness for Lisa Pieraccini and for the overall effectiveness of the course were both 7.

## Sustainability and/or Scalability

The Collegium Grant has been transformational for students at all levels, not to mention my own research. It is the hope that the research done on these Etruscan artifacts, thanks to the Collegium Grant, will enable the upper administration at UC Berkeley to recognize this valuable collection and 'dig deep' to support further initiatives so that it does not lie untouched for another hundred years.

## Student Feedback

- I would like to start by saying that I didn't want to take this course and I knew absolutely nothing about the Etruscans. This class blew my mind! Lisa provided us with informative readings and encouraged us to analyze and appreciate the Etruscans from a new theoretical lens. I hope this course is available to future students and I only want Lisa to teach it.
- I feel so humbled to have been able to take such an intimate, in-depth seminar that exposed us to real objects as undergrads! Lisa was just a devoted, passionate, involved professor, the best art history teach I've had at Berkeley.
- I absolutely loved the hands-on experience I gained. Lisa was (and is) so enthusiastic about the Etruscans that I myself wish to study them now. Lisa is always so available and easy to talk to—she responds within minutes to your email. I would highly recommend this course to continue because it is a once in a lifetime opportunity.