PEIL Project Final Report
Environmental Restoration and Monitoring: Service Learning as a Tool for Interdisciplinary Education
2014-2015

Mary Fortune, Professor, Hospitality, Recreation, and Tourism
Michael Massey, Assistant Professor, Earth and Environmental Sciences
David Stronck, Professor, Teacher Education
Community partners: Dr. Joyce Blueford, Math/Science Nucleus; Tri-CED Community Recycling, Masonic Homes of California, Laurie Rogers, City of Fremont

Summary

Major Accomplishments and Challenges
• Established an active collaboration between CSU East Bay, the Masonic Homes of California (Union City, CA), the Math/Science Nucleus (Fremont, CA), Tri-CED Community Recycling (Union City), and California Nursery Historic Park (Fremont).
• CSU East Bay students and faculty from REC 1000, ENSC 2401, and ENSC 2900 courses engaged in service learning-based environmental restoration activities at the Masonic Home in the Winter and Spring of 2015. Approximately 40 plants were planted, beginning the active restoration of an East Bay hillside to native oak woodland. Ecological research also began.
• CSU East Bay students in REC 1000 researched and presented various aspects of the history and redesign of the California Nursery Historic Park in a project-based learning format.
  o Culminated in an event at the park in Spring 2015, where students presented 10 posters related to service learning and the California Nursery. In attendance: PEIL team, Associate Provost Linda Dobb, Joyce Blueford, Bruce Roeding (his family owned the nursery), and Laurie Rogers and the Fremont Parks & Recreation Department.
  o Website: https://csuebpeiloaksparks.shutterfly.com
• CSU East Bay students in TED 539X also completed a service learning component.
• Collaborators from the Math/Science Nucleus guided CSU East Bay students in REC 1000, ENSC 2401, and ENSC 2900 in learning about environmental restoration at three locations: Tule Ponds in Fremont (a successful restoration project), California Nursery Historic Park (involved as a staging area for the Masonic Homes restoration), and the Masonic Home.
• Major challenges included scheduling of courses for interdisciplinary interaction, ensuring that course learning objectives were met, and ensuring rigor, breadth, and depth of course content, given unconventional learning methodologies.
• ~9 hours of class footage, and ~80+ pages of transcripts provided a wealth of natural, qualitative interactions to study student learning and identify best practices for incorporating service learning activities into courses. Analysis of these data are pending.
• Qualitative evidence suggests that activities increased student engagement, and may have improved learning. Feedback was positive: students found the experience valuable.

Courses that Incorporated Redesigned Curriculum
• REC 1000 Introduction to Recreation (Fall 2014, Winter 2015, Spring 2015)
• ENSC 2401 Environmental Biology Laboratory (Winter 2015)
• ENSC 2900 Field Activity in Environmental Science (Spring 2015)
• TED 5391, 5392, 5393 Instructional Methods for Single Subject Classroom (Fall 2014, Winter 2015, Spring 2015)

Data
• Pre/post attitudinal survey data
• Pre/post qualitative written reflections regarding service learning and the course experience
• Many hours of video recordings of courses, ~80+ pages of transcripts over two quarters
• Student research posters and papers, lab assignments, other course assignments

Dissemination
• Thus far, the project resulted in two poster presentations, and one student research poster presentation (see Appendices).
• The project also was presented at the biennial conference of the George Wright Society (an organization for ecologists and stewards of parks and protected lands), March 29–April 5, 2015. A paper was published in the conference proceedings (see Appendices).
• The project was also mentioned in the Spring 2015 issue of Cal State East Bay Magazine, and may be developed for a more detailed story in a later issue.

Project Continuity
• The collaboration between CSU East Bay, Math/Science Nucleus, Tri-CED, and Masonic Homes of California remains active, and restoration activities will continue.
• A proposal was submitted to the United States Environmental Protection Agency for the Environmental Education Local Grants Program solicitation to continue the PEIL work. The proposal was for $85,732 of external funding, with $29,594 of in-kind support from faculty.
• Additionally, a related proposal was submitted to the Chancellor’s Office Campus as a Living Lab program for 2015, for a feasibility study to engage in environmental restoration activities on the CSU East Bay Hayward Campus. The proposal was accepted and funded for $12,000 of funds, plus $14,000 in infrastructure support.
• The work begun in the 2014-2015 academic year through this PEIL project will continue in the 2015-2016 academic year and beyond, based on the established collaboration. An “open house” is planned in October 2015 to invite additional CSU East Bay faculty collaborators to participate.

This restoration project is scheduled to last for four decades, and CSU East Bay students will have the opportunity to participate in a variety of capacities throughout the near future. The community connections established through this project will provide educational opportunities for students that will increase student engagement and learning.
Overview

The project was conceived as an interdisciplinary, service learning-based curriculum model that would bring together students from multiple disciplines (environmental science undergraduates, general education undergraduates, recreation undergraduates, and practicing classroom teachers in the teacher education program) to engage in environmental restoration activities, with local community partners. The project initially focused on beginning the reforestation of a ~200 acre parcel of land owned by the Masonic Homes of California, situated on a grassy hillside in Union City, California. Prior to the Mission Period, many East Bay hillsides were covered in California Coast Live Oak woodlands; early maps of the missions clearly document the presence of woodlands, and multiple lines of scientific evidence also indicate their presence. The arrival of settlers and cattle resulted in the conversion of many of these woodlands and forests to grassland. Most notably, the city of Oakland stands on land that used to be native oak forest, but none of the original oaks from this forest remain today. The Masonic Home committed to restoring the oak woodland on their land, and partnered with others in the community to make it a reality.

Tri-CED Community Recycling manages the food waste from the Masonic Home in Union City, California, and produces several tons of compost per week. The reforestation project makes use of this compost on-site, since the compost helps to improve the soil quality on the hillside. Dr. Joyce Blueford of the Math/Science Nucleus in Fremont, California partnered with Tri-CED and the Masonic Home, since Dr. Blueford was involved with the successful restoration project at the Tule Ponds at Tyson Lagoon, adjacent to the Fremont BART station. Dr. Blueford also partners with the City of Fremont to work at the California Nursery Historic Park, an important staging area for the trees grown for the restoration. Dr. Blueford has a long history of collaboration with Dr. David Stronck at CSU East Bay, and Dr. Stronck initiated the collaboration with Drs. Mary Fortune and Michael Massey that resulted in this project. Major partners and some of their roles are listed in Table 1.

Table 1. Partners involved in this project, and their roles/contributions to the project. Note that the roles and contributions included in this list are not exhaustive, and intended only to highlight each partner’s unique contribution to the project as a whole.

<table>
<thead>
<tr>
<th>Partner</th>
<th>Major role(s) and contributions (not an exhaustive list)</th>
</tr>
</thead>
</table>
| Masonic Homes of California | • Access to land for reforestation  
| | • Infrastructure (yurt, water, etc.)  
| | • Raw materials for compost  
| | • Site management |
| Tri-CED Community Recycling | • Composting management  
| | • Interface with Masonic Home staff |
| Math/Science Nucleus | • Expertise regarding environmental restoration  
| | • Trees and plants for restoration  
| | • Staff, training, and vision  
| | • Interface with Masonic Home and City of Fremont |
| City of Fremont (California Nursery Historic Park) | • Access to California Nursery Historic Park |
| California State University East Bay | • Service learning-focused educational opportunities  
| | • Assessment and research opportunities  
| | • Students and faculty for restoration and other projects  
| | • Supplies and equipment for students |
Faculty from three departments in separate colleges at CSU East Bay were involved in the project, and each faculty member was to incorporate environmental restoration-related service learning activities into their courses and assess the impact of these activities. Faculty members and courses that were redesigned to include service learning activities are shown in Table 2.

As the project developed and matured through the 2014-2015 academic year, students in REC 1000 Introduction to Recreation worked on research projects related to the California Nursery Historic Park, in addition to learning about environmental restoration at Tule Ponds at Tyson Lagoon, and engaging in restoration activities at the Masonic Home site. Students in TED 5391/5392/5393 Instructional Methods are working teachers in K-12 classrooms during the day, so due to scheduling constraints completed service learning activities of their choice at other times (e.g., on weekends); one class meeting was “cancelled” to allow students to engage in service learning activities and reflect on their experiences. Students in ENSC 2401 Environmental Biology Laboratory and ENSC 2900 Field Activity in Environmental Science learned about environmental restoration and local environmental history at the Tule Ponds at Tyson Lagoon and California Nursery Historic Park, and engaged in environmental restoration activities at the Masonic Home.

![Image](image.png)

*Figure 1. CSU East Bay students performing research for their REC 1000 projects at the California Nursery Historic Park.*

Science literacy through participation in an active science experiment was also a key component of the project. In addition to the educational research component through the PEIL program, the project also focused on ecological research in order to study the process of reforestation. While approximately 40 trees and plants were planted and mapped by CSU East Bay students over the course of two quarters, the ecological research component of the project is still in its infancy due to time, material, and statistical constraints. Nonetheless, the project is well positioned to continue planting and expand ecological research efforts in the future, over the multi-decadal span of the restoration. Students in environmental science courses and REC 1000 were exposed to, and participated in, the design and implementation of a real-world, open-ended science experiment. Feedback was sought from students regarding their perception of “real” science (as contrasted with “cookbook” science experiments common in K-12 and even college laboratory settings).
Table 2. Faculty at CSU East Bay involved in course redesign around service learning and environmental restoration, as well as the departments, colleges, and courses targeted in the project.

<table>
<thead>
<tr>
<th>Faculty member</th>
<th>Department/college</th>
<th>Course(s) redesigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Mary Fortune</td>
<td>Hospitality, Recreation, and Tourism (College of Education and Allied Studies)</td>
<td>• REC 1000 Introduction to Recreation</td>
</tr>
<tr>
<td>Dr. Michael Massey</td>
<td>Earth &amp; Environmental Sciences (College of Science)</td>
<td>• ENSC 2401 Environmental Biology Laboratory</td>
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<td></td>
<td></td>
<td>• ENSC 2900 Field Activity in Environmental Science</td>
</tr>
<tr>
<td>Dr. David Stronck</td>
<td>Teacher Education (College of Education and Allied Studies)</td>
<td>• TED 5391, 5392, 5393 Instructional Methods for Single Subject Classroom</td>
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**Assessment**

Assessment of the project’s impact was conducted using pre/post attitudinal surveys, qualitative written reflection assignments, video recordings, and transcripts of the video recordings. The natural interactions captured by the video recordings are particularly important, since they document natural interactions without potential positive bias induced by course assignments or surveys (even though surveys were intended to be anonymous, and all feedback assignments are anonymized prior to analysis).
Preliminary Description of Results

Impact on Students

Qualitative data from student feedback and video transcriptions indicates that students found service learning-related course activities to be valuable and engaging. Many students noted that they found it as easy, or easier, to focus outside of the classroom, though they were initially concerned that being outside of a traditional classroom would make it more difficult to focus. Most students enjoyed the course activities at Tule Ponds at Tyson Lagoon, California Nursery Historic Park, and the Masonic Home. Several environmental science majors noted that outdoor work was the reason they chose their major, and they were happy to do some outdoor work in class. One military veteran even strongly stated that the student would rather return to war than take a “desk job,” and said that the outdoor activities helped to strengthen the student’s justification for their choice of major. An engineering student (in construction management) said that the environmental restoration activities even made the student view environmental sustainability in a new way. This was because the person who initiated the environmental restoration project at the Tule Ponds at Tyson Lagoon was an environmental engineer; the student could see the connection between environmental sustainability and the student’s major, for the first time. The student wrote,

“…This is when I felt that this course could really go hand-to-hand in my career. I feel people who really care for the environment would pay more money to a construction company if they consider the environment and build around it as towards animals and plants and would incorporate the ecosystem needs of the location. This course just opens my mind to new possibilities in which people can make a difference in the environment and care for it the same time doing what they love do for a career.”

Students in REC 1000 enjoyed the project-based learning component, and the community involvement. For example, one REC 1000 student wrote in the final reflection:

“…[C]oming into this class my mindset was on getting a passing grade and that was it, just to knock out an area for my general education. But being in this class for my spring quarter allowed me to experience visiting the California Nursery, which I wouldn’t do on my free time. Attending the Nursery with my class not only make me grow closer to my classmates but also allowed me to grasp a better understanding of leisure, recreation, and play.”

Though student feedback regarding off-campus service learning activities was overwhelmingly positive, several students reported that they would have been more comfortable, or would have learned more, in a conventional classroom setting. For example, one student wrote:

“…From past lab experiences, I feel I’ve learned more in the classroom through a textbook (though I recall wishing there were more field activities). A textbook has much more material available at my fingertips than an outdoor class. Yes, there are the instructors with knowledge, but I still don’t feel they hold as much information. This may just be due to my previous 15 years of schooling in a classroom setting, with a textbook that doubles the amount I actually learned.”

A few students also objected to the physical labor involved in the project, though many students specifically highlighted the refreshing nature of physical work, sunlight, and fresh air. Despite these misgivings, students reported gaining practical knowledge that would have been difficult to encounter in the classroom setting.
Results of quantitative pre/post attitudinal assessments are pending at the time of writing, but responses were highly positive (both before and after service learning activities, so their difference might not be statistically significant). Qualitative assessments provide the majority of the data for assessing student impact.

One unanticipated difficulty was that of students who experienced the service learning activities in multiple courses (specifically, ENSC 2401 and ENSC 2900). This difficulty was addressed by placing experienced students in leadership roles, and by designing other activities (such as mapping the planting area) that were not performed in the first quarter of the planting project. Students reported less positive attitudes after their second experience with the project, perhaps attributable to boredom and lack of content depth. This is a challenge that should be addressed in the future, in order to maintain student engagement, interest, and learning with ongoing involvement with the project. Ideally, each course will have its own unique involvement, so students will have different experiences with the project each time.

Overall, it is worth emphasizing that student feedback was very positive. Some students even reported that the experience was unforgettable, and something they will remember long beyond their college years. This suggests that the experience was valuable for student engagement, interest, and knowledge/skill retention. Based on positive student reports and perceived value of the experience, the project will continue in the 2015-2016 academic year and beyond.

Challenges for Faculty

Three primary challenges presented themselves for project faculty: scheduling, meeting course learning objectives with the service learning component, and maintaining academic rigor in a more “inquiry-based,” less content-heavy course setting.

Scheduling is a key component of interdisciplinary collaboration, especially when students and faculty from multiple courses are involved. Where possible, care was taken to schedule courses (specifically, REC 1000 and ENSC 2401) at overlapping times to allow students from both courses to mingle and collaborate. Unfortunately, it was discovered that this was not possible for TED 539X, since students in those courses teach in a K-12 setting during the day, and are therefore unavailable before the late afternoon. Thus, particularly in the winter months, outdoor activities such as environmental restoration are limited by early sunsets. As a result, TED 539X students were unable to collaborate with students in REC 1000, ENSC 2401, and ENSC 2900. Furthermore,
ENSC 2900 is only held on Fridays, while REC 1000 was scheduled for Tuesday and Thursday afternoons; REC 1000 students and ENSC 2900 students were also unable to collaborate as a result of scheduling constraints. Scheduling was a major, but unanticipated, barrier to interdisciplinary service learning experiences envisioned in the design of the project.

Meeting course learning objectives while providing in a rich, immersive service learning experience was also a challenge. For example, normally ENSC 2401 Environmental Biology Laboratory loosely follows the content in the associated ENSC 2400 Environmental Biology classroom course, with conventional laboratory activities supplementing and expanding on material introduced in ENSC 2400. The service learning component was extraordinarily valuable for students as a learning opportunity, but the course content was much more loosely connected to the ENSC 2400 course material. In order to address this shortcoming, students were specifically guided, via in-class discussion, to highlight areas of the service learning experience that were related to course content (e.g., drought adaptation, plant physiology, ecology, etc.)

On a related note, a few students noted in their qualitative reflections that they felt course content lacked a certain amount of rigor, as a result of the service learning experience. These students noted that they would have preferred a more “conventional” learning experience. Indeed, this is an area for further study: in a conventional class, perhaps ten concepts/skill areas/knowledge areas are explored over the course of a ten-week quarter; perhaps students retain a certain amount of the knowledge and skills explored in class (say, half). Even if fewer concepts are explored in a service learning context, if retention is improved, the service learning component was at least not harmful to student learning, and may provide other benefits (e.g., increased motivation or engagement).
Next Steps and Project Continuity

The collaborative relationships established between CSU East Bay and the local community through this project will continue through the 2015-2016 academic year and beyond. The restoration is projected to take forty years or longer, and this year’s work is only the beginning. The persistent and severe drought in California has limited water availability and limited the number of plants that can be established in the first year of the project, but the relationships and plans for project continuation are ongoing.

Of particular value to students in REC 1000 Introduction to Recreation was the opportunity to engage in group research and project-based learning at California Nursery Historic Park; this was unanticipated at the inception of the project, and grew naturally out of faculty interactions with the community partners. The park is undergoing changes and a redesign, and students may have the opportunity to participate in activities at the park in the future.

The ecological restoration project continues at the Masonic Home, and a proposal was submitted to the United States Environmental Protection Agency for the Environmental Education Local Grants Program solicitation for 2014 to continue the work begun in the PEIL program. The proposal was written for $85,732 of external funding, with $29,594 of in-kind matching support from CSU East Bay faculty. Regardless of whether the proposal receives funding, CSU East Bay faculty are committed to working with Dr. Blueford to continue the restoration efforts, with the assistance of CSU East Bay students as part of in-class service learning activities. A section of ENSC 2401 Environmental Biology Laboratory is scheduled for Winter 2016, and students will continue the restoration project and ecological research at that time. Project faculty are also committed to searching for external funding opportunities to continue/expand the project.

In order to increase CSU East Bay faculty and student participation, Dr. Blueford and Dr. Massey are planning an “open house” for the Fall of 2015, to invite the participation of additional faculty collaborators, graduate students, etc.

In a related vein, a proposal was funded ($12,000 in support, with a $14,000 budget for necessary infrastructure) by the CSU Chancellor’s Office “Campus as a Living Lab” program to conduct a student-led feasibility study for similar ecological restoration activities on undeveloped areas of the CSU East Bay Hayward campus. The end goal is to use composted food waste from the on-campus dining hall, and to reforest an area of campus to be used as an instructional resource and passive recreation space. The skills and community partnerships established through this project will be essential in bringing ecological restoration, recreational design opportunities, etc. to campus.
The Role of the PEIL Program in the Project

This type of project is perhaps not typical for educational interventions, and is not typical even among PEIL projects. Rather than focusing on redesigning existing courses or creating new courses that incorporate pedagogical innovations, the focus of this project was to create community partnerships and educational resources that can be utilized on an ongoing basis by CSU East Bay faculty and students, to the benefit of community partners. Inherently, the project has a broad, interdisciplinary focus, and a long time horizon. The work completed in the 2014-2015 academic year is the equivalent of “planting the seeds” for future innovative work and positive, lasting community impact.

In addition to providing funding for faculty time, student assistant time, and project materials, the PEIL program provided guidance regarding educational impact assessment. Additionally, PEIL planning sessions enabled the refinement of the project model and associated ongoing research questions. Administrative support through the Office of Faculty Development was also critical during project implementation.

Crucially, the PEIL program was also able to provide an honorarium for Dr. Joyce Blueford, who is a key project partner and spent many hours teaching and guiding CSU East Bay students as a result of this project. Dr. Blueford also provided training, staff support (through Math/Science Nucleus), coordination assistance with other community partners, and vision for the project. Without the support of Dr. Blueford, enabled by the PEIL program, this project would simply not have happened. The flexibility of the PEIL funding was important in providing support for this key community partner.

It is safe to say that without the scope and extensive support provided by the PEIL program, a project of this complexity (involving three faculty across three departments in two colleges, teaching eight different instances of six different courses over the 2014-2015 academic year, with the involvement of at least four partner organizations in the surrounding community) would not have been possible. As a result of the PEIL program, the groundwork has been laid for decades-long collaborative relationships with community partners. These relationships will help create opportunities to positively impact CSU East Bay students, the surrounding community, and the local environment.
Appendices

Appendix A: Examples of redesigned course syllabi

Appendix B: Examples of qualitative feedback assignments

Appendix C: Examples of other project-related course assignments

Appendix D: Poster presentations, examples of student posters from REC 1000

ENSC 2401 – Environmental Biology Lab
Winter 2015

Time: Th, 2:00 pm to 4:30 pm
Place: North Science Building, room 212

Instructor: Mike Massey, mike.massey@csueastbay.edu
Office: North Science building, room 352
Office hours: W 11 am to 12 pm, Th 10 am to 12 pm

Office phone: (510)885-3439

This course is the introductory biology course for environmental science majors (in conjunction with ENSC 2400, the separate theory course). The course is one (1) credit unit. This course, ENSC 2401, fulfills the Area B3 (Natural Science Laboratory) General Education requirement. It is not necessary to complete ENSC 2400 prior to (or concurrently with) my ENSC 2401 course, though the two courses will share themes and content.

What is this laboratory class in environmental biology?
Environmental biology is the study of how life interacts with the environment. In this course, we will investigate the interactions of living organisms with current and past environments, and the interactions of organisms with other organisms. We will also investigate how organismal structure and function influence where and how organisms live, and the effects of humans on biological diversity. The course content normally loosely follows the order of material in ENSC 2400 (science and experimental design, evolution and Earth history, taxonomy, organism biodiversity, ecosystem biodiversity, ecology). However, for Winter 2015, the course will have an intensive and specific focus on experimental design, data collection/analysis, native Bay Area plant species, and ecological restoration.

Course objectives
• Investigate two major organizing themes of biology: (1) evolution, and (2) ecology, with a focus on biodiversity and organism/environment interactions
• Explore the role of species (e.g., humans) in shaping local and global ecology, including biological and environmental impacts, with a specific focus on ecological restoration

Student learning outcomes
After successful completion of this course, students will be able to:

1) Design and conduct scientific investigations related to biological and environmental science
2) Identify common native plant species in California, and discuss the evolutionary and ecological context within which the organisms exist(ed)
3) Collect and present data and information clearly and concisely in laboratory reports
4) Discuss their influence on the local community and environment through service learning
Required textbook

There is no required text for ENSC 2401, but a general biology textbook such as *Environmental Biology* (Calver et al., 2009) or *Campbell Biology* (Reece et al., 2014) is recommended as reference material. Other references such as field guides are also excellent, and if you have them you are welcome to bring them and use them in class. Required materials will be distributed via Blackboard.

Blackboard and e-mail communications

Course information, updates, announcements, etc. will be distributed via Blackboard. You can access the class Blackboard site by logging in with your NetID from https://bb.csueastbay.edu. Please note that non-CSU East Bay e-mail addresses are not to be used for e-mail communications, for security and privacy reasons!

Grading

Laboratory assignments (50%)
- Laboratory assignments and reflection papers – 40%
- Capstone essay/reflection (~2 pages, 12 point font, 1” margins, single-spaced) – 10%

Attendance and contribution (50%)
- This is a laboratory class, so you should plan to attend every class – we need you!
- Attendance (sign in, sign out) and contribution – 50%

Class Policies

Late work (important, read for “Late Day” policy)
You will receive three (3) “late days.” Each late day will give you an extra 24 hours to turn in the assignment. When you turn in a late assignment, please note at the top of your assignment that you are turning it in late. Note the due date, the date you are turning it in, and the number of late days used. Any assignment turned in late without the use of late days will result in a zero for the particular assignment. Assignments are due by 11:59 pm Pacific Time on the announced due date, based on the Blackboard timestamp. Please do not e-mail assignments that should be turned in on Blackboard.

Attendance
You will be asked to sign in and sign out every class. Attendance is a substantial portion of the course grade, and missing class will result in a lower grade. Missing more than two (2) classes for any reason will result in an automatic “F,” “NC,” or “WU” (depending on circumstances). Please come to class. Attendance is ultimately your choice, but please be aware of the potential consequences.

Academic accommodation for documented reasons
I strive to maintain an inclusive, supportive learning environment. If you require an academic accommodation for a documented and approved reason, please feel free to see me privately. If you require assistance in the event of an emergency evacuation, please let me know as soon as possible. If you feel you may require academic accommodations but have yet to start the process, please contact Accessibility Services.
Academic dishonesty
Please don’t cheat. If you are ever tempted to do so, please come see me privately and explain the situation, so that I can learn from your experience and help other students – my goal is to never place you in a position where you feel compelled to be dishonest.

However, if you do engage in academic dishonesty (including cheating, plagiarism or self-plagiarism, copying or purchasing others’ work, submitting the same work for multiple classes, etc.) my response will be dictated by the University policy on academic dishonesty, and consequences can include failure of the class, suspension, and/or expulsion. Again: please, just don’t do it.

By enrolling in this class the student agrees to uphold the standards of academic integrity described at [http://www20.csueastbay.edu/academic/academicpolicies/academic-dishonesty.html](http://www20.csueastbay.edu/academic/academicpolicies/academic-dishonesty.html).

Electronics
Electronics are not “banned” in class, though the use of electronics may be prohibited at particular times. Please be considerate to your fellow students and switch your devices to silent mode, without vibrating alerts, during class. There will be times when we will be using computers in the lab to look up information, analyze data, etc. However, if phones, laptops, iPads, etc. become a distraction or disruption during class, it may negatively impact the “class contribution” portion of the final grade for all students involved. Please keep your technology under control so that everybody’s learning needs can be met.

Emergency information
California State University, East Bay is committed to being a safe and caring community. Your appropriate response in the event of an emergency can help save lives. Information on what to do in an emergency situation (earthquake, electrical outage, fire, extreme heat, severe storm, hazardous materials, terrorist attack) may be found at:


Please be familiar with these procedures. Information on this page is updated as required. Please review the information on a regular basis.

General remarks
I will do my best to hold myself to high standards, to always give you the best that I can give, and to help you have the best educational experience possible. I want to help you meet your goals and become the person you want to be. I would also like to ask for your best efforts, your best work, and your help in making this a great class for all of us.

Special notes for Winter 2015 on ecological restoration and service learning
For the Winter 2015, the ENSC 2401 class will be beginning a pilot study in long-term ecological restoration and service learning for environmental science labs. We will be working with numerous community partners, including Tri-CED Community Recycling, the Masonic Homes of Union City, the California Nursery Historic Park, and the Math Science Nucleus (both in Fremont) to begin an ecological restoration project (and long-term, open-ended science experiment) in the East Bay hills south of the CSU East Bay Hayward Campus. This is an exciting opportunity for all of us to positively impact our local community, and to learn about nature and science in the meantime!

As a result of this pilot project, we will be taking no less than FIVE (5) field trips this quarter during the regularly scheduled class period. Field trip days are listed in the course schedule (below), and are determined by the availability of our community partners. We will discuss transportation
arrangements in class, and class meeting times/locations for field trip days will be posted on Blackboard. Please contact the instructor if you have any questions.

One goal of the pilot project is to help improve science instruction, interdisciplinary instruction, and educational opportunities at CSU East Bay. You may have the opportunity to meet and work with students from Hospitality, Recreation and Tourism, as well as students who are pursuing degrees in Educational Leadership. You will also be asked to participate in an educational research study to help quantify the impact of these practices on your motivation, engagement, and learning. The instructor will provide you with an approved Informed Consent form, as well as questionnaires and reflection papers associated with the research study. Since the educational research study is an integral part of the course, the expected impact of the study on you is minimal; it should require minimal extra time or effort. Please see the Informed Consent form for more details, and feel free to ask if you have any questions!

This should be a very exciting quarter, and I’m looking forward to working with you all!

Class schedule (subject to adjustment/change)
The class is broadly organized around four topics:

1) Experimental design,
2) Evolution,
3) Species and ecosystem diversity, and
4) Ecology

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (1/5-1/9)</td>
<td>Introduction, experimental design</td>
<td>Lab #1 out (experimental design)</td>
</tr>
<tr>
<td>2 (1/12-1/16)</td>
<td>Native California plants and trees</td>
<td>Lab #2 out (plant identification)</td>
</tr>
<tr>
<td>3 (1/19-1/23)</td>
<td>Tule Ponds trip (January 22)</td>
<td>Lab #3 out (ecological restoration)</td>
</tr>
<tr>
<td>4 (1/26-1/30)</td>
<td>California Nursery trip (January 29)</td>
<td>Lab #4 out (plant growth)</td>
</tr>
<tr>
<td>5 (2/2-2/6)</td>
<td>Masonic Home trip #1 (February 5)</td>
<td>Lab #5 out (restoration trip report)</td>
</tr>
<tr>
<td>6 (2/9-2/13)</td>
<td>Masonic Home trip #2 (February 12)</td>
<td>Lab #6 out (plants/trees at CSUEB #2)</td>
</tr>
<tr>
<td>7 (2/16-2/20)</td>
<td>Hayward Campus nature walk</td>
<td>Lab #7 out (nature walk reflection)</td>
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<tr>
<td>8 (2/23-2/27)</td>
<td>Masonic Home trip #3 (February 26)</td>
<td>Lab #8 out (final trip reflection)</td>
</tr>
<tr>
<td>9 (3/2-3/6)</td>
<td>Animals and predation</td>
<td>Lab #9 out (owl pellets and diet)</td>
</tr>
<tr>
<td>10 (3/9-3/13)</td>
<td>Final experimental measurements</td>
<td>Lab #10 out (experimental write-up)</td>
</tr>
<tr>
<td>Finals week (3/16-3/20)</td>
<td>Final class meeting</td>
<td>Capstone essay due 3/18, 11:59 pm</td>
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<tr>
<td></td>
<td></td>
<td>Final meeting 3/17, 2 pm – 3:50 pm</td>
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</tbody>
</table>

The schedule is subject to change, for example, if we need to spend more time on a topic. I will announce changes via Blackboard, and will discuss them in class.

How to do well in this class

• Come to class (biggest hint ever)
• Ask questions in class, especially when you don’t understand (second biggest hint ever)
• Do the required work, and get it in on time
• Participate and contribute to the class
• Ask for help, and help your classmates (and instructor!) whenever possible
• Contact me and/or come to office hours if you have questions
<table>
<thead>
<tr>
<th>Date</th>
<th>Class topic</th>
<th>Assignment</th>
<th>Readings</th>
<th>Events/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEEK 1</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>MAR 31 &amp; APR 2</td>
<td>Welcome &amp; Introduction</td>
<td>Get to know me! Complete pre-assessment, survey, &amp; PEIL paperwork Outline of Course Objectives</td>
<td>Chpt. 1-Power, Promise, Potential &amp; Possibilities Chpt. 15. Health, Wellness, Quality Chpt. 18. Rec &amp; Leisure as a Profession</td>
<td>Think/be Positive 24hrs FREE TIME PIX</td>
</tr>
<tr>
<td>WEEK 2</td>
<td></td>
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</tr>
<tr>
<td>APRIL 7 &amp; 9</td>
<td>-What is Service Learning? -History &amp; Philosophy of Leisure, Recreation &amp; Play</td>
<td>Research Historic Parks, Recreation &amp; Leisure theories Reflection #1 Begin working in teams-CA Historic Nursery</td>
<td>Chpt. 2 History of Recreation Chpt. 3 Philosophy of Leisure</td>
<td>THURS Fieldtrip #1: CA Nursery</td>
</tr>
<tr>
<td>WEEK 3</td>
<td></td>
<td></td>
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<tr>
<td>APRIL 14 &amp; 16</td>
<td>-My Own Kind of Leisure -Service Learning Community Project</td>
<td>Create your own leisure survey to measure: 1) quality of life, 2) play, 3) recreation, 4) leisure, 5) wellness, 6) work and 7) job</td>
<td>Chpt. 4 Leisure &amp; Rec for Indv. in Society Chpt. 5 Leisure Service/Delivery System</td>
<td>Time to go to the Library</td>
</tr>
<tr>
<td>WEEK 4</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>APRIL 21 &amp; 23</td>
<td>-Research 101 Effective Communication -Leisure &amp; Ethics</td>
<td>Why Research? How to make an oral presentation</td>
<td>Chpt. 6 Parks &amp; Protected Areas Chpt. 7 Public Recreation</td>
<td>THURS Fieldtrip #2: CA Nursery</td>
</tr>
<tr>
<td>WEEK 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APRIL 28 &amp; 30</td>
<td>Leisure &amp; Recreation: Multi-faceted Delivery Systems</td>
<td>Working outside your comfort zone: Participate in an activity that is unfamiliar to you, write about it</td>
<td>Chpt. 8 Nonprofit Chpt. 9 For Profit</td>
<td>THURS Fieldtrip #3: CA Nursery</td>
</tr>
<tr>
<td>WEEK 6</td>
<td></td>
<td></td>
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<tr>
<td>MAY 5 &amp; 7</td>
<td>-The Complete Leisure: Part of All Societies, -Midterm</td>
<td>Complete Midterm Assignment Reflection #2 Take a hike: Choose a trail/path appropriate to your skill level</td>
<td>Chpt. 10 Therapeutic Rec Chpt. 11 Unique Groups</td>
<td></td>
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<tr>
<td>WEEK 7</td>
<td></td>
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<tr>
<td>MAY 12 &amp; 14</td>
<td>Leisure in Society: Enhancing Indv., group and community</td>
<td>-Dare to Dream -Diversity Service Learning Community Project: Begin working on your team presentation</td>
<td>Chpt. 11 cont. Chpt. 12 Across the Lifespan</td>
<td>FRI Optional Fieldtrip: Masonic Center</td>
</tr>
<tr>
<td>WEEK 8</td>
<td>OFF CAMPUS RESEARCH PRESENTATIONS</td>
<td>SL Teams present their topics/findings related to their group’s research topic</td>
<td>Chpt. 13. Program Delivery System Chpt. 14. Rec Sport Management</td>
<td>THURS Fieldtrip #4: CA Nursery RESEARCH POSTER EVENT</td>
</tr>
<tr>
<td>WEEK 9</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>MAY 26 &amp; 28</td>
<td>-Going Solo -Natural Resources</td>
<td>My Own Private Power Journey</td>
<td>Chpt. 16. Outdoor &amp; Adventure Chpt. 17. Art &amp; Culture Chpt. 19 International</td>
<td></td>
</tr>
<tr>
<td>WEEK 10</td>
<td>Cultural Presentations</td>
<td>As a team, how does your culture recreate? Spend leisure time? Play?</td>
<td></td>
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</tr>
<tr>
<td>FINALS WEEK</td>
<td>SL SITE VISIT REFLECTIONS</td>
<td>Reflection #2 &amp; Post-assessment &amp; survey</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dr. Mary F. Fortune Hospitality, Recreation & Tourism (HRT) Office: PE 121
Phone: 510-885-3043 (HRT Office phone) Cell: 408-799-6868
Email: mary.fortune@csueastbay.edu
Office Hours: T/TH 12:30-1:45p.m. & By appointment
On campus: T/TH 2:00pm-3:50pm, AE 360, CSUEB
Off campus: APRIL 9, 23, & 30, & MAY 21, 2015, Nursery Historic Park, 36550 Niles Blvd., Fremont, CA 94536

SYLLABUS

REC 1000: Introduction to Recreation (4): An introductory multi-disciplinary and multi-cultural investigation of the implications of how leisure contributes to the quality of life of individuals and communities. Survey of institutions and organizations providing recreational services, examining the effects of ethnicity, dominant culture, age and ability on service delivery. This is a prerequisite for all core courses.

SPECIAL SECTION - REC 1000 FALL, WINTER AND SPRING - “Environmental Restoration and Monitoring: Service Learning as a Tool for Interdisciplinary Education.”

During the 2014-2015 year, the university funded a Programmatic Excellence and Innovation in Learning (PEIL) grant entitled: “Environmental Restoration and Monitoring: Service Learning as a Tool for Interdisciplinary Education.” The project serves as a tool to improve learning outcomes for students from diverse fields of study. The focus is on Environmental Science, Teacher Education and Hospitality, Recreation and Tourism students enrolled in courses offered by each Department.

The learning outcomes of the grant are two-fold and include using the long-term reforestation of oak woodlands on degraded lands on and around the campus of CSUEB and scientific research of planting trees, and selectively protecting them from being eaten (using fencing and/or underground mesh to isolate them from grazing). Students then monitor growth (by measuring height, circumference, counting leaves, etc.) and survival over a number of years. These activities require fencing, mesh, and a tape measure, available through the PEIL grant.

The second portion of the grant is to collaborate on the research and develop of activities for the California Nursery Historical Park with the Fremont Parks and Recreation Department, also where oak seedlings are being grown. The interdisciplinary nature of the projects also creates ample opportunities for interaction and collaboration between science and non-science students as well as science educators. Ultimately, Service based learning leads to improved engagement and learning outcomes for students (e.g., Kuh et al., 2008; Lyday et al., 2001).

Adding value to the course, the project will directly benefit students by 1) providing access to active, engaging collaborative service learning opportunities, 2) increasing understanding of science and its role in students’ lives, linking learning to tangible benefits for the environment, the university, and the surrounding community. 3) The project will also serve as an opportunity for students to think critically about issues related to environmental sustainability, one of the defining challenges of the 21st Century, and 4) become involved in
undergraduate research through collecting and analyzing data.

The PEIL TEAM: Dr. David Stronck, Dr. Mary Fortune and Dr. Mike Massey (CSU, East Bay), Dr. Joyce Blueford, President of the Math / Science Nucleus, and Ms. Laurie Rogers, Recreation Superintendent, Fremont Parks and Recreation Department.

GOAL OF COURSEWORK: To build a connection between assignments and Service Learning where students do community service-related activities intelligently based on instruction that they learn during the quarter. Another goal is to improve student engagement, retention and learning through student participation in research and development of recreation/leisure activities at the California Nursery Historic Park and an environmental restoration project: the reforestation of native oak woodlands on degraded lands. Supporting that hands-on learning opportunities that have “real world” impact on local communities strengthen the learning experience.

KEY ASSIGNMENTS
-Pre course assessment (individual)
-PEIL survey (individual)
-Reflection #1 AND #2 (individual)
-In class/online weekly Discussion Board (8)
-Service Learning Community Project & Off Campus Data Collection: Forming teams, students will work with several others and conduct research and develop activities located at the CA Nursery Historic Park, Tule Ponds and Masonic Temple.
-Mini Research Paper (individual)
-Service Learning Community Presentation (10 group presentations)
-Post course assessment (individual)

MANDATORY OFF CAMPUS MEETING DATES (THURSDAY, 2-4pm):
APRIL 10, 23, & 30
MAY 21
LOCATION: California Nursery Historic Park, 36550 Niles Blvd., Fremont, CA 94536

ADDITIONAL OFF CAMPUS SERVICE LEARNING CREDIT (FRIDAY - for Oak Seedling project):
April 3 (TULE PONDS 1999 Walnut Avenue, Fremont, CA 94536)
April 10, May 1, & 15 (MASONIC TEMPLE 34400 Mission Boulevard Union City, CA 94587)

TEACHING STYLE – PROBLEM BASED LEARNING (PBL): This is a student-centered learning approach that uses real world situations in an open but focused learning process to develop skills in solving problems on your own and in a team. Benefits: More student involvement/motivation and student accountability in learning. Enhances value of learning and appreciation of the course materials and creates confidence among students.

CSUEB INSTITUTIONAL LEARNING OBJECTIVES:
1. Thinking and Reasoning. Think critically and creatively and apply analytical and quantitative reasoning to address complex challenges and everyday problems.
2. Communication. Communicate ideas, perspectives, and values clearly and persuasively while listening openly to others.
3. Diversity. Apply knowledge of diversity and multicultural competencies to promote equity and social justice in our communities.
4. Collaboration. Work collaboratively and respectfully as members and leaders of
diverse teams and communities.
5. Sustainability. Act responsibly and sustainable at local, national, and global levels.

HOSPITALITY, RECREATION & TOURISM (HRT) LEARNING OBJECTIVES
1. Analyze and generate effective, sustainable solutions based on evidence and technology and provide relevant references. Critical Thinking.
2. Demonstrate significant knowledge of effective leadership and teamwork strategies, management skills, and evaluation of service quality and consumer needs through investigation and practical experience. Leadership.
3. Articulate clearly (speak and write) ethical, philosophical, historical, and current practices and administrative foundations of the profession. Professional Knowledge.
4. Demonstrate techniques that contribute to a culture of dignity and respect in the workplace. Social Justice.

REC 3200 COURSE OBJECTIVES COURSE LEARNING OBJECTIVES

<table>
<thead>
<tr>
<th>Learning Objective/Professional Competencies Addressed</th>
<th>How Measured - by Assignment</th>
</tr>
</thead>
</table>
| Demonstrate an understanding of the conceptual foundations of play, recreation, and leisure - in society, over lifespan. | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |
| Demonstrate an understanding of the interrelationship between leisure behavior and the natural environment.             | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |
| Demonstrate understanding of ethical principles and professionalism and the available resources for professional development. | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |
| Demonstrate the importance of leisure service delivery systems for diverse population and for promoting community development. This includes program and service development. | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |
| Ability to present in writing and orally in-depth research on subject concerning problems and opportunities in recreation/leisure by using leisure to promote solutions and increase quality of life. | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |
| Demonstrate that recreation/leisure are parts of all societies and enhance individual, group and community quality of life. | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |
| Show the historical perspectives and development of natural resources and recreation policies and their implications for recreation resource management. | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |
| Demonstrate the social, economic, cultural and environmental impacts associated with multiple uses of natural resources. | 1. Weekly Discussion Board/Essays  
2. Group Projects  
3. Quizzes & Final |

Aligned to the NRPA /AALR PROFESSIONAL CORE COMPETENCIES:
8.01 Understanding of the conceptual foundations of play, recreation, and leisure. (Chapters 1, 13)
8.02 Understanding of the significance of play, recreation, and leisure in contemporary society. (Chapters 1, 2, 3, 4, 15)
8.03 Understanding of the significance of play, recreation, and leisure throughout the lifespan. (Chapters 1, 3, 4, 13, 15)
Understanding of the interrelationship between leisure behavior and the natural environment. (Chapters 6, 12)

Understanding of the following as they relate to recreation, park resources and leisure services. (Chapters 2, 7, 18) Professional Organizations (Chapters 2, 6, 7)

Understanding of ethical principles and professionalism. (Chapters 3, 4, 7, 18)

Understanding of the importance of maintaining professional competence and the available resources for professional development. (Chapters 7, 18)

Understanding of the importance of leisure service delivery systems for diverse populations. (Chapters 3, 4)

Understanding the roles, interrelationships, and use of diverse leisure delivery systems in promoting. (Chapter 7) 8.12. Community development. (Chapter 7)

Understanding of the variety of programs and services to enhance individual, group, and community quality of life. (Chapters 7, 12, 13)

Understanding of the history and development of natural resources recreation policies and their implications for recreation resource management. (Chapter 6)

Understanding of the social, economic, cultural and environmental impacts associated with multiple uses of natural resources. (Chapter 6)


ATTENDANCE AND PARTICIPATION GUIDELINES: To be exemplary in your face-to-face and online participation, it is important that you are prepared for assignments and other course work ahead of time. Be prepared with questions and thoughts for the course in general and your fellow students postings in particular. Dialogue is key! To post your assignment and then not participate in the various discussions hurts your own grade and affects the total class learning. Our goal is to advance learning and as social animals, we do this via interactive communication. Challenge the thoughts of others but do so in a mature, responsible manner by flushing out the proposed thought or idea and not attacking the person giving it. NOTE: Sensitive subjects will be discussed in the class. Care and respect for others must be shown at all times.

Similar to on campus classes, your attendance online is necessary with the learning activities assigned, posting to discussion boards, communicating with your classmates in order to complete the class. We realize this is a new style of learning for most of you. We are here as your "GUIDES ON THE SIDE" rather than a "SAGE ON A STAGE". We have designed learning activities for you to discover knowledge about the subjects that we are presenting. Your job is to participate fully and get the most out of this class. Online learning requires discipline on your part. The grade you earn will be exactly that. You will earn it--we do not give grades. Your time is recorded by the software and will be part of your participation grade.

REC 1000 is a lively course and attendance is measured by time spent in class and online. You have total control over when you learn in this class. For the online portion, it can be at 2:00am in your pajamas but you have to attend to this course. If you think about it in terms that if you were in class for 4 hours a week (regular 4 unit course) you need to spend a minimum of 4 hours a week online. Each of your courses at the University requires homework. Homework for an online class involves research, site visits, interviews and other learning activities. The rule of thumb for homework is 2-3 hours a week per class. The good thing about online learning is that 4-7 hours can be divided up over many days. The most critical aspect is attending to the discussion boards so you can communicate with your classmates. If someone needs you to work with you on a project, they will be
stumped if you only show up once a week.

University classes require discipline-Self-Discipline. No one will be taking roll and you don’t need to show up a specific time. You do however need to complete assignments on time and talk to the others in your group discussions in a timely manner. Often times it only takes 5-10 minutes to check the discussion board and respond to others in your group. At other times it will take much longer time to do the assignments for class, so online is not easier, it is just more efficient. YOU will be doing research and reading, discussion and group projects, online presentations, site visits and outings. You will spend time learning about yourself and what makes you tick.

EVALUATION GUIDELINES: Your final grade for the course is based upon your participation, critical thinking skills, ability to follow directions and most importantly, your written/oral communication skills demonstrating your knowledge related to the course learning objectives. Grading is done by criteria and you will earn points for your participation in the online class assignments, group discussions, projects and special assignments. All written work must be typed, looking professional (no misspelled words, proper punctuation, proofread BEFORE you turn it in) and turned in promptly. Content is extremely important but delivery is critical as well. See “Holistic Rubric for essays.” NO LATE ASSIGNMENTS ACCEPTED. Your ability to communicate and write clearly, concisely, cohesively, correctly, courteously, and to follow the basic principles introduced in class – of particular note is to follow the prescribed netiquette guidelines when communicating online. CSUEB grading/academic standards can be found at http://www.csueastbay.edu/ecat/current/i-120grading.html#. PLEASE ALSO SEE GRADING RUBRICS

ASSESSMENT & EXPECTATIONS FOR COURSE CREDIT: Online participation related to discussion boards, homework and special events, quizzes, teamwork, and final. Participate in blackboard discussions 3-5 times/week- Complete all assignments and submit on time – NO LATE PAPERS/POSTINGS ACCEPTED!

DISCUSSION BOARDS: Discussion Boards are your main way of “talking” in this class. Online courses do not allow for sitting in the back of the class and “soaking” it all in. You MUST participate online in these discussion boards. You also need to read all posts as that is how you will “listen” to what others are saying. You are not just learning from the instructor, you are also learning from each other. The Rubrics listed in the syllabus will show you what we expect from postings. It doesn’t matter what other online teachers do, this is how I will grade the discussion boards and they are NOT optional.

GRADING SCALE: A (93/100%), A- (90-92.99%), B+ (88-89.99%), B (83-87.99%), B- (80-82.99%), C+ (78-79.99%), C (73-77.99%), C- (70-72.99%), D+ (66-69.99%), D- (60-65.99%), F (59.99% or below)

<table>
<thead>
<tr>
<th>EVALUATION CRITERIA: 1000 TOTAL POINTS</th>
<th>PERCENTAGE OF TOTAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>280 points DISCUSSION BOARD POSTS</td>
<td>28%</td>
</tr>
<tr>
<td>200 points FINAL</td>
<td>20%</td>
</tr>
<tr>
<td>200 points PARTICIPATION</td>
<td>20%</td>
</tr>
<tr>
<td>150 points GROUP PROJECT</td>
<td>15%</td>
</tr>
<tr>
<td>100 points MIDTERM</td>
<td>10%</td>
</tr>
<tr>
<td>40 points QUIZZES/OTHER</td>
<td>4%</td>
</tr>
<tr>
<td>30 points EVALUATION (SELF/GROUP)</td>
<td>3%</td>
</tr>
</tbody>
</table>
Assignment #3: Reflections on Science Learning Outside of the Classroom

And now for something completely different…
This week, we will be taking part in the first of a series of off-campus activities designed to take our learning out of the classroom, and into the local community. This is very different from the usual “laboratory” class where you come to class, do some activity, write up something about it, turn it in, and repeat. For this week’s assignment, I’d like for you to spend some time thinking about and reflecting on this opportunity, and to write your thoughts out for me.

Note that there are no “correct” answers, I want to hear your honest thoughts. As such, I will not be grading what you write for “correctness” or anything like that. Instead, I will be evaluating you based on the completeness and thoughtfulness of your responses.

The assignment grade will be assigned as follows: 20% formatting, readability, and clarity (Can I read it and understand your perspective? Is it legible, neatly formatted, and in proper standard written English?); 30% completeness (Did you answer all of the questions?); and, 50% thoughtfulness (How well do your responses convey that you thought deeply about them and formed a well-considered perspective on the issues?) I hope that this assignment will help me understand your viewpoints on this quarter’s activities, so please feel free to be honest.

Questions to reflect upon…
I would like you to reflect on, and respond to, the following sets of questions (you don’t have to respond to every sentence, these are just some ideas to get you going…):

1) What are your expectations for this class? What are you hoping to learn in this class to apply to your everyday life?
2) What are you hoping to learn in this course that might help you in your future career/profession, if anything?
3) Do you, personally, like the opportunity to take class outside of the classroom, or do you prefer to be in the classroom for class (in a more conventional classroom setting)?
4) Think of at least one challenge to learning college-level science outside of the classroom. What are the challenges you can think of? How will you deal with those challenges in order to get the most out of the experience(s)?
5) Have you had “service learning” experiences before? What was valuable for you, if so? What would you do differently? If you have not had previous “service learning” experience, what are your hopes? Do you want to do more in the future?

Submitting your reflection
Your reflection paper (~2 pages, single-spaced, 12-point font, nicely formatted) should be uploaded to Blackboard in PDF format by next Tuesday night (January 27, 2015) at 11:59 pm.
Capstone: Reflections on the Course, Field/Service Learning Component, and Your Learning

Revisiting your experiences, and reflecting on your learning
Well, we’re finally at the end. This was hopefully a non-standard biology lab course, and a memorable experience for you. For the final assignment in the class (ahem, and for 10% of the final course grade), I’d like for you to spend some time thinking about and reflecting on this opportunity, and to write your thoughts out for me.

Note that there are no “correct” answers, I want to hear your honest thoughts. As such, I will not be grading what you write for “correctness” or anything like that. Instead, I will be evaluating you based on the completeness and thoughtfulness of your responses.

The assignment grade will be assigned as follows: **20% formatting, readability, and clarity** (Can I read it and understand your perspective? Is it legible, neatly formatted, and in proper standard written English?); **30% completeness** (Did you answer all of the questions?); and, **50% thoughtfulness** (How well do your responses convey that you thought deeply about them and formed a well-considered perspective on the issues?) I hope that this assignment will help me understand your viewpoints on this quarter’s activities, the things you learned, etc., so please feel free to be honest.

Questions to reflect upon...
I would like you to reflect on, and respond to, the following sets of questions (you don’t have to respond to every sentence, these are just some ideas to get you going...):

1) What were your expectations for this class? What were you hoping to learn in this class to apply to your everyday life? Did the class meet your expectations? Were there any unexpected surprises?
2) What were you hoping to learn in this course that might help you in your future career/profession, if anything? Did the course fulfill your hopes?
3) What was the most rewarding part of this course? What was the most valuable part of the course? What was the most challenging part? What would you do differently, if you had the chance?
4) What were the advantages and disadvantages of being outside of the classroom, and of engaging in “service learning” activities? Do you feel like you learned as much as you could have in the classroom? Why or why not? Will you continue with “service learning” activities? Why or why not?
5) Do you feel like this course exposed you to “real” science? If yes, how? What were the highlights of your learning in this course related to biology, the environment, environmental science, or environmental sustainability? How could your learning be improved in the future?
Submitting your reflection

Your reflection paper (~2 pages, single-spaced, 12-point font, nicely formatted) should be uploaded to Blackboard in PDF format by next Thursday night (March 19, 2015) at 11:59 pm.

If you have late days remaining, the latest I can accept an assignment is Saturday, March 21, 2015, in order to give me enough time to evaluate your work, verify your grade, and input your grade.

Thanks!
TED 539X Assignment rubric

In both the Winter Quarter and the Spring Quarter, 4 hours of a class meeting will be cancelled to allow the credential candidates to do 4 hours of the following:

**Rubric for Field Experiences Ranging from Community Service to Research**

<table>
<thead>
<tr>
<th>Level</th>
<th>Time factor</th>
<th>Environmental Science</th>
<th>Recreation Student* does</th>
<th>Credential Candidate º does</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basic</td>
<td>0.5</td>
<td>community service, e.g., digs a hole, adds compost, and/or plants a tree.</td>
<td>community service, e.g., care for plants at Nursery or sites</td>
<td>advises student to be at appropriate place and identifies people in the team effort.</td>
</tr>
<tr>
<td>2. Intermediate</td>
<td>1.0</td>
<td>service learning, e.g., after instruction about invasive plants, identifies and removes invasive plants.</td>
<td>service learning, e.g. using historical information, restores structures</td>
<td>provides student with background information needed to act intelligently with a team in the field.</td>
</tr>
<tr>
<td>3. Advanced</td>
<td>1.5</td>
<td>contributes to research by collecting data: e.g., measuring and recording heights of trees and/or monitoring of environment (e.g., observing changes of protective fences)</td>
<td>collects data to monitor environment, e.g., populations of birds or bees, etc.</td>
<td>explains the research project and needed activities, and how the student’s contributions meet a need.</td>
</tr>
<tr>
<td>4. Expert</td>
<td>2.0</td>
<td>does research by using Vernier probes to collect and analyze data of temperature, or pH, or salinity, etc. and compares measurements with earlier data.</td>
<td>Reports research and/or plans projects of restoration</td>
<td>trains student on use of research instrument(s), e.g., a Vernier probe. Assist with the analysis of data and/or assists with composing reports.</td>
</tr>
</tbody>
</table>

Time factor = weighted value of experience for credit in TED 5392 and/or 5393, e.g., two hours at the #4 Expert level completes the “four hour requirement.”

* Student is either a secondary-school student under instruction by a credential candidate or an undergraduate student of the PEIL project at CSU, East Bay.

º Credential candidate in TED 5392 and/or 5393 assists a student.
REC 1000 - INTRO TO HOSPITALITY, RECREATION & TOURISM
Dr. Mary F. Fortune, Professor
LEARNING COMMUNITY PROJECT: ORAL/RESEARCH POSTER ASSIGNMENT
200pts
DUE THURSDAY, JUNE 4 BY 2:00pm
Location: California Historic Nursery
Length of presentation: Not to exceed 10 minutes
Format: Poster, Video, PowerPoint Presentation, other (check with Instructor)

STEP ONE: RESEARCH POSTER ASSIGNMENT. Each Learning Community team will select a problem(s) or opportunity (ies) related to the California Historic Park and Nursery and Service Learning. Poster presentations should be creative and include active learning ideas related to park and recreation events and activities. Group projects must be accompanied with a short written essay with a complete Bibliography of EVERY place you gathered information AND who did what. Using information without giving credit is PLAGARISM. Facts must be supported with citations (APA format). You will present your project in class and post on the discussion board. Please include in your presentation a write-up of your thoughts and reflections as related to the course learning objectives. For full credit you must use the Essay Rubric and 7 C’s of Communication and comment on 2 other posts on the Discussion Board.

STEP TWO: FINAL PROJECT GUIDELINES (Deliverables)
1) Poster guidelines - http://guides.nyu.edu/posters AND http://www.posterpresentations.com/html/free_poster_templates.html. Each team member must speak/present information (a minimum of two minutes). RESEARCH POSTER DIMENSIONS: 36” tall by 48” wide (standard) or 36” by 36” (square). MUST INCLUDE THE FOLLOWING: Title, date, class, information about the topic, pictures or graphics, etc., etc.
2) A 1-2 page written report about your team project and how it relates to the CA Historic Nursery, course readings/other materials, and most important - ‘who did what!’
3) Flyer and email blast advertising the Research Poster Event (June 4, 2-4pm, CA Nursery)
4) Individual Reflection Essay

STEP THREE: LEARNING OBJECTIVES (Outcomes)
These outcomes define what you learned or were able to do as a result of a learning activity and are typically expressed as knowledge, skills, or attitudes. Please remember to work on them as you develop your Learning Community Research Project.
Critical Thinking
· Organizational
· Interpersonal Communication
· Persuasion
· Negotiation
· Teamwork
· Leadership
· Project Management
· Budget & Financial Management

STEP FOUR: GRADING
Evaluation: By peers, by Instructor
· Letter grade based on actual “deliverables” (at time of final report of your Learning Community Project)
Mapping the planting area

Today we are going to map the planting area in two ways: semi-quantitatively, by hand, and using handheld Global Positioning System (GPS) unit.

Making a (not so) simple map

Today, your group will start by making a simple map of the planting area. You will do this using a compass (the compass feature of a smartphone, or of the handheld GPS unit, should do nicely if you don’t happen to have a magnetic compass with you), a ruler, and possibly a yardstick/meter stick.

Your map should have an arrow indicating North, and a scale for distance.

In order to get started, get in teams of four and orient yourself and your map. The instructor will help you get oriented, so that the North arrow on your map aligns with “true north” (or if your compass/map use magnetic north, be sure to clearly mark this fact!)

Once your map is oriented, pick a plant in the planting area, and mark it on your map. Make sure to think carefully about where to put it on your map, in order to leave enough room for the rest of the plants. Also, think carefully about the scale you use, so you can fit the whole planting area on to one 8.5” by 11” sheet of paper. You might want to talk with your group about a strategy for determining an appropriate scale for the planting area before you start marking things off.

Once you plot your first plant, you can plot all of the other plants using bearings and distances from known points on your map. You might mark other features (e.g., water faucets, fence lines) on the map, if you find it helpful.

For each plant, you will want to record the following (use the attached table):

1) Number or letter (on the map)
2) Type of plant
3) Approximate height
4) Approximate circumference of stalk(s) at ground-level (use string)
5) Evidence of grazing damage (yes/no, if yes, an approximate percentage)
6) GPS coordinates

A note on bearing

If you are not familiar with the concept of “bearing,” that’s okay. It is used to describe the compass direction of one object in relation to another object. Bearing is often given in general terms (“the oak is west of the buckeye”), but
can be much more specific ("the oak is located on a bearing 272 degrees from the buckeye"). As you can imagine, the latter is much more precise.

North is considered zero degrees (0°), and bearing proceeds in a clockwise direction from there. East is ninety degrees (90°), south is 180°, and west is 270°. Pop quiz: what bearing is exactly northwest? Approximately what cardinal direction is bearing 200°?

A note on distance

I encourage your group to measure out distances approximately, in terms of paces. It’s much easier than trying to measure exactly, when we’re really just trying to be semi-quantitative in our mapping. In order to use stride length accurately, though, you have to measure the length of your stride so that you can calibrate number of paces to an actual distance!

To calibrate your paces, pick a reproducible stride you will use to measure distance. Then use a yardstick/meter stick to compute an average stride length of, say, ten to thirty strides (get some statistics on this, since not every stride will be exactly the same length!)

Once you understand distance and bearing, get mapping! On your map, estimate the bearing and distance to each plant, and plot it accordingly.

A note on GPS

Please make sure to fill out the data table, with GPS coordinates, so we can try to get positions and types for each plant!

The GPS units we are using have an accuracy of ~1-3 m, which isn’t that great, but we will see how we can do. If we have multiple groups, with multiple GPS units, all recording the positions of the same plants, hopefully we can get some decent statistics on the positions of each plant.
## Data table

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Map

Scale:
This project focuses on service learning activities for: 1) Reforestation of oak woodlands on degraded lands in the East Bay, and 2) Exploration and development of recreation activities at the California Nursery Historical Park (where oak seedlings are being grown). The purpose of the study is to measure educational impact of service learning on students enrolled in Environmental Science and Hospitality, Recreation and Tourism classes winter and spring 2015. Community partners include the Math Science Nucleus, Fremont Parks and Recreation Services, Tri-CED Community Recycling, and Masonic Homes of California.

The oak reforestation scientific research involves planting trees, and selectively protecting them from being eaten (using mesh to isolate them from grazing). Students monitor growth (by measuring height, circumference, counting leaves, etc.) and survival over a number of years. Measurements are simple and concrete, but have great significance in the study of restoration ecology.

Our working hypothesis is that the project benefits students by:

1) Providing access to active, engaging collaborative service learning opportunities,
2) Increasing understanding of science and its role in students’ lives, linking learning to tangible benefits for the environment, the university, and the surrounding community
3) Serving as an opportunity for students to think critically about issues related to environmental sustainability, one of the defining challenges of the 21st Century, and
4) Involving students in undergraduate research through collecting and analyzing data.

Students enrolled in environmental science and introduction to recreation courses are participating in service learning projects at the Masonic Center (oak seedling planting) and California Historic Nursery (park redesign & event planning). Students complete the following activities:

- Entry & exit survey
- Off-campus service learning activities (Masonic Center/oak seedling planting & CA Nursery Park open house & welcome event)
- Reflection essays related to Service Learning & off-campus activities
- Research Paper
- Group Service Learning Site Visit Presentations
- Multimedia activities (video, website, etc.)

References


The authors would like to thank the CSU East Bay Provost’s Office, and the Office of Faculty Development, for financial, technical, and administrative support through the Programmatic Excellence and Innovation in Learning (PEIL) program. Additionally, the authors are sincerely thankful for assistance from the Math Science Nucleus, Tri-CED Community Recycling, and the Masonic Homes of California for their participation and assistance with the work.
Ecological Restoration and Service Learning: Student Learning and Quality of Life

by Mischa Minkler-Green and Dr. Michael Massey
California State University East Bay
Center for Student Research

Methods:
Students enrolled in Environmental Biology lab participated in both classroom learning and outdoor field learning consisting of:
- Learning to recognize local native plants, understanding the ecological
- Geographical, and geological history of the region
- Exposure to the concepts of environmental biology through tangible contact with features of the region surrounding CSUEB.

Video footage was taken for the duration of the class. Anonymous surveys were distributed at the completion of the project. Questions were answered on a 1-4 scale, 1 being disagree and 4 being agree. Questions addressed student learning and effect on quality of life below:
- This outdoor service learning experience increased my desire to go outside
- I felt better when we were outside the classroom for class
- I felt like I learned less material being outside the classroom for class
- I felt like being outdoors for class improved my quality of life
- I couldn’t really see a connection between my personal health and restoration of the natural environment as a result of this class
- My experiences in this class made me want to get into better physical shape

Results:
Average overall student response regarding outdoor activity was 3.48, with 3 being positive and 4 being highly positive.

Students also rated the project’s impact on their quality of life at an average of 3.48 (with 3 being positive and 4 being highly positive). Students majoring in Environmental Sciences/Studies answered survey higher than other majors.

Discussion:
Surveys had mixed reviews. Most students found the project to be engaging and inspiring, but few reported that they would have learned better in a classroom. It is to be expected that some differences among students would occur, because everyone learns differently. For future classes, more written work to complete in the field may help student engagement for those who prefer a textbook/in-class learning environment. Environmental Science majors were more likely to report enjoyment in course and appreciation for an outdoor learning environment. Quality of life is a broad and open-to-interpretation concept. It is difficult to measure, however, it is comforting to know that one class emphasizing experiential learning, service learning, and ecological restoration can be a positive experience for students. If education can combine service with achieving greater quality of life, we are on the right track.

References:
Center for Student Research, California State University East Bay. Hayward, CA.
California Nursery Historic Park & Service Learning
Farah Ali, Tim Myers, Thor Iann Lau

What is service learning?

• Associated with community involvement

• Integrates academic learning by volunteering and giving back to the community

• Hands on learning rather than a traditional classroom setting

• Constantly learning while practicing

• Provides a practical experience and skills

• Benefits include personal, social, and intellectual growth

Our Experience

“When I first arrived at the nursery, I wasn’t really sure what I’d expect to see. Walking into the adobe area, it instantly gave me a historic vibe. After hearing a bit about the nursery and getting tour, I realized how much history is behind just this one place and the significance of it.

- Farah Ali

“I had no idea what to expect when I went there. The first thing that I thought when I got there was how big this place was. I soon learned about how popular it was and that former presidents visited there. As I took a tour, this place blew my mind. I would love to be able to take another tour. I had a blast.”

- Tim Myers

“The nursery provides a great place for us to relax. Through the tour to the nursery, I learned about the history of farming in the Bay area. When I walked around the nursery, I saw a lot of trees, roses and some beautiful buildings. It made me forget all the pressure I had”

- Thor Iann Lau

Relation to service learning

The California Nursery is now a park that is one of the only parks that allows dogs to roam free. This experience is part of service learning as we are doing a service to the community by creating and presenting these posters, as we help viewers and park goers learn more about this park and the history behind. By getting the opportunity to be here, we’ve learned so much more than we expected such as how the Vallejo adobe was built, what palm trees symbolize, and the agricultural history within the nursery. This is outside work and is a breath of fresh air to go out and learn outside of the classroom.

Works Cited


http://www.dropoutprevention.org/effective-strategies-service-learning

http://www.uschau.edu/civic-engagement/service-learning/definition-of-service-learning
Boxed Trees
Angelica Castaneda, Christian Corral, Jeannie Hall, Willie Wong
California State University, East Bay

Introduction
The California Nursery Company was a business specializing in agriculture. The demand for trees that produced food for consumption in the 1890s encouraged the nursery to focus on this type of production. Trees would be grown at the nursery, and then transported to other locations.

What are boxed trees?
Boxed trees are large versions of potted plants, where they are grown in containers. The roots of a tree would grow only up to the size of the container its in, which allowed the nursery to grow the trees within its lands before transporting it to other areas.

What kinds of trees were grown?
Since there was high demand for trees that provided food, fruit trees were among the most desired ones. However, the California Nursery Company also grew ornamental trees as well. Some of the many trees that were grown and transported include:
- Fig Tree (ficus carica)
- Apple tree (malus domestica)
- Almond tree (prunus duleis)
- Peach tree (prunus persica)
- Wild plum tree (prunus domestica)
- Palm Tree (arecaceae)
- Redwood (sequoioideae)

How were they transported?
Around the 1890s, boxed trees and other supplies were transported by railcars, which were loaded and unloaded by teams of men and horses.

In the early 20th century onwards, the nursery utilized cranes and flatbed trucks to transport the boxed trees, removing the need for horses and significantly reducing the need for manpower.

Works Cited


Ornamental and Fruit Trees. (1915). Niles, California: California Nursery.

Acknowledgements
We would like to thank Dr. Mary Fortune, professor of California State University, East Bay, and Dr. Joyce Blueford, project manager for the California Nursery Historical Park Master Plan, for their support of this research project.
The Masonic Home in Union City is a retirement and resident care community that occupies 267 acres in the East Bay Hills (San Francisco Bay area). The land was purchased by the Masons in 1893, and was devoid of native trees and shrubs. The land was denuded of its oak forest by the early Spaniards for wood prior to the Mexican independence in 1821. The hillsides were used mainly for cattle grazing by the Mexican rancheros and even after California independence in 1846. That practice continues even today. Prior to the rancheros, the native Ohlone used the oak forest as a source of food (acorns) and the habitat was rich with other birds and mammals for hunting. The origin of the oak forest goes back to 3-4 million years as the area emerged as land. During the Ice Age there is fossil evidence of a large oak savannah.

Presently in the state of California there is only 100,000 acres of oak woodland, with 80% that is privately owned. Coast live oak woodland is only about 4% of this total. This would be the largest project in the San Francisco Bay area that uses food waste to accomplish oak woodland restoration while training youth in the science behind the project.

The Masonic Home is now using food waste and horse manure, to produce compost to improve the native soil for restoring the native oak forest on 200 acres. This project requires many volunteers. Starting in the Fall of 2014, three professors on the nearby Hayward campus of the California State University, East Bay (CSUEB), are leading annually about 120 of their students in providing various services from caring for native plants at the California Nursery to digging holes at the Masonic Home. Students in a laboratory course of Environmental Science are also collecting data for a research study. Students in a Recreation course are focused on the preparation of plants at the California Nursery.

Within the state of California there are many oak management groups like University of California’s Integrated Hardwood Range Management Program (IHRMP), California Oak Foundation, USDA Forest Service Pacific Southwest Research Station (PSW), Department of Forestry and Fire Protection, California Department of Fish and Game to name a few. A goal of current project is to work with these groups so they are aware of what we are doing and to incorporate any best management research that they may offer to our project. These groups can best inform our group on ecology, regeneration, range and livestock relations, development of wildlife habitat corridors, long term monitoring and diseases that oak woodlands may be susceptible. The project is also collecting data to determine the carbon cycle as the grassland is changed into an oak forest. The project is currently funded by CSUEB and has applied to the Environmental Protection Agency for additional funds to recruit and prepare volunteers.
TriCED, a local recycling non-profit has been working with the Masons to reduce their food waste and keep it onsite which totals about two tons per week. Green Mountain Technologies has developed “The Earth Flow” which is an in-vessel system that converts up to two tons of daily organic waste into compost. Shredded woody, green waste and horse manure will be added to the system to so decomposition will produce rich compost ready to be sued in restoration. The design incorporates a fully enclosed vessel and odor control system with an inclined auger for mixing, shredding, and discharging the organic waste. The typical process time for the waste to flow through the vessel is 14 to 21 days.

The Math Science Nucleus (MSN), a non-profit organization that incorporates high-school and college students to help in designing the actual restoration projects will assist greatly in the training of the youth. The MSN has worked on many local restoration projects over the last 15 years using youth to maintain and in some cases design the restoration. MSN has developed strategies that help education students on the science behind restoration. For a complete look at the those projects, please go to http://msnucleus.org/watersheds/index.html.

From a recent symposium on Oak Woodland Management scientists outlined some of the knowledge that is still needed to understand and better manage oak woodlands. One thing they pointed out that oak woodlands often do not respond the way we think they should. The current project is collecting data about the local restoration of the forest. Science based knowledge that provides better explanations of how oak woodland ecosystems function is especially needed. An important tool is a continuously updated, statewide geographic information system accessible to local planners and the public. Documenting the types of trees and use of food waste composting and the techniques we use would help other large restoration projects. An extremely important feature of oaks trees is their canopies; these have a major impact on the local environment. They affect nutrient cycling, seedling establishment and survival, understory species, forage production and growth, organic matter (on and in the soil), and possibly soil texture. Reports of preliminary work indicate that soil texture under a mixed stand of coast live oaks was coarser and higher in organic matter. Other work reported confirms past evidence that nutrient level under oak is several times greater than that of adjacent grassland. Part of the higher nutrient concentration is undoubtedly due to litter.

Cattle currently graze the land to keep the grass cut to prevent grass fires. We will slowly remove the cattle from the land, or we may decide on developing corridors as the trees mature and cattle can still come on and off the land depending on the surrounding landowners (East Bay Regional Park) which use cattle to graze the area.
The project will coordinate current knowledge and make it easier for the residents of the Masonic Home to understand what is going on and to get them actively engaged. Part of the Restoration project is building a demonstration area open to the residents of the home and eventually to school groups in the community. The professors involved in the project will publish scientific articles and educational material to inform scholars and the public. The current professors of the project are Dr. David Stronck, Dept. of Teacher Education, Dr. Mary Fortune, Department of Hospitality, Recreation and Tourism, and Dr. Michael Massey, Department of Earth and Environmental Science.

Progress will be measured by having in place a data collection protocol for monitoring the site for decades. This project will have benchmarks at 5, 10, 20 and 30 years before there is a full oak forest canopy. CSUEB has established several courses that focus on this project and will provide volunteers for many years. Since the in-vessel technology of composting is relatively new for use in restoration type projects, the data collected will help to determine the merit of such technology and whether it is appropriate for the expense.

CSUEB in collaboration with MSN, TriCED Recycling, and Masonic Home for the Elderly is reforesting 200 acres in the East Bay Hills using food waste and other organics. The long-range plan is to use experiences from the current work at the Masonic Home to provide forest restoration on the 200 undeveloped acres of the Hayward campus of CSUEB. Between the undeveloped land on Hayward campus and the undeveloped land at the Masonic Home are Garin Regional Park and Dry Creek Pioneer Regional Park. These parks are almost entirely undeveloped land. The ultimate plan is to cooperate with these Parks in providing a contiguous and continuous oak forest on about 1,000 acres along a hilly ridge from the southern end of Hayward to the northern side of Union City.

The goals of the project include:

1. The project will document reforestation techniques for conversion of barren hillside to Live Oak Woodland Community using an in-vessel composter. The project will use an online format for easy updating, including onsite monitoring of the experimental grove. This would include a white paper and process of our findings using food waste. This is important for replication at other sites where there is large amounts of food waste (i.e. schools, nursing homes.)

2. Faculty of CSUEB will work with oak reforestation experts to help develop strategies for planting and long term monitoring program of this area. Long term and short term projects will be outlined to help direct work at Masonic Home land for 10-20 years. Weed management, reintroduction of native animals, reintroduction of plant understory, how to reduce cattle population, and other considerations will be considered for a successful project. The plan is to provide the knowledge for maintaining this reforestation.

3. Courses at the CSUEB now attract students to volunteer at the Masonic Home Oak Woodland Restoration Project. Future plans include recruiting and involving high-school
students. Teachers and administrators in the five comprehensive high school of the city of Fremont have already indicated their support and interest in participating in the restoration project. A requirement for graduation from these high schools is to do community service.

4. The hands-on experiences will probably inspire many participating students to seek employment in related areas, ranging from growing plants in a nursery to doing scientific research. Work experience using green technologies, e.g., composting may motivate students to continue their education in environmental sciences.

Live oak woodlands in the San Francisco East Bay (Diablo Range) that are under 50 years old are rare. Grazers (cattle) are mainly responsible for the lack of new growth. Much of the hillside in the East Bay have been devote of nutrients that would promote growth. The correct vegetation (successional flora) cannot add the nitrates and other nutrients that are needed for long term sustainability. Solving this problem needs innovative ways to produce enough compost. Large institutions like the Masonic Home for the Elderly in Union City produces between 1-2 tons of food waste per week. Instead of hauling out this food waste, three non profits have banned together to look for a solution.

**The cooperating groups of this project include:**

1. The Masonic Home owns 270 acres of land, of which 200 is rented to ranchers for cattle grazing. They also have access to vast amount of manure that has been accumulating on part of their land from a nearby horse ranch. The vegetation from the other 70 acres landscape is also available. Food waste available from 2 communities on site (Masonic Home and Aracia Creek, for mobile seniors retirement community). Historically the food waste has been trucked to a Milipitas composting site for conversion into compost. The carbon footprint for this operation has been high.

2. TriCed Recycling has been responsible for the food waste transportation. As the states’s largest non-profit recycling business, they felt that there should be another way to reduce emissions and help green the hillside. TriCed is also part of a multiyear grant to train students (12 per year) to learn about greening jobs. This is cooperation with Chabot College in Hayward. Dr. Michael Massey of Environmental Science at CSUEB has submitted a proposal that almost certainly will be funded, that requests funds to do a feasibility study on doing composting on the Hayward campus of CSUEB.

3. MSN uses science and community service/service learning in restoration sites in Fremont. A fifteen-year project at Tule Ponds at Tyson Lagoon has transformed a fallow area to an urban forest with over 300 trees. It is presently used as an education center to teach students on the environment and to train university and high school students on restoration techniques. Long-term composting with wood chips has proven very successful. The techniques used at Tule Ponds will be modified in this project.
**Benefits from this project include the following:**

1. To develop a process to incorporate food waste and other on-site organics to reforest 200 acres to a Live Oak Woodland Community. This improves “greening” in an innovative way.

2. To create a process that will help create best practice management for reforestation for the three non-profits involved. This will especially benefit the Masonic Home maintenance crew and staff at CSUEB that will be trained on ecosystem management approach to urban forestry. Currently they are unaware of such options in managing land.

3. To document this process of reforestation will advance the practice of urban forestry and will help to arrest the decline of the urban forest through education in the community. It will also provide a way for replication through online information.

4. A hands-on job training that will inspire students to understand how science is important in restoration and the greening of an area. Through classroom presentation this will reach a wide and highly diverse audience, especially at CSUEB and the local high schools.

5. To collaborate amongst very different non-profits, for the benefit of the environment and community. This promotes organizations to think outside the “box” so they can focus on multiple benefits of urban forestry even in low income area. Outreach to low income areas brings the information to the community through schools.

References:
