

MERRITT COLLEGE

ENVIRONMENTAL MANAGEMENT AND TECHNOLOGY PROGRAM
REVIEW
SPRING 2010

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Environmental Management and Technology Program Review

2. Narrative

The Environmental Management and Technology Program is positioned to become a premier education and demonstration site for the growing “green wave”. It is a Career Technical Education program which also offers university-transferable courses and Associate degree and Certificates in Green Building and Energy Technology, Human Ecology, Policy, Planning and Environmental Justice, Ecological Restoration and Watershed Management, Ranger Naturalist Outdoor Education, and Urban Farming and AgroEcology. Sections of these courses are offered during the day, evening, and on weekends. Students are being prepared for a wide range of employment and entrepreneurial opportunities in the emerging environmental sustainability fields. The Environmental Program is expanding with community partnerships and has joined into the Landscape Horticulture and Environmental Management and Technology Department. The Self-Reliant House is the main classroom and laboratory demonstration facility for the Environmental Program. It is situated adjacent to a wildlands park along a nature trail. It also hosts the David R. Brower, Ronald V. Dellums Institute for Sustainable Policy Studies. We are the only broad Environmental program in the Peralta District and the north Bay Area. Our students receive a comprehensive overview of the emerging environmental careers and are less susceptible to short term trends than they would be if they, for instance, knew only solar installation or hazardous materials handling. The environmental and climate crises are well known and are receiving public attention. This is being slowly translated into funding and job opportunities which is being reflected in our program’s growing enrollment. Our faculty are practitioners in the field and use the most current hands-on real world field laboratories. The basic scientific law of Ecosystems is that everything is interconnected, thus interdisciplinary. Therefore, the Program’s Learning Objectives are field oriented and interdisciplinary and at their base. The institutional barriers to both the seasonal and partnership time demands for weekend classes and interdisciplinary and team teaching are increasing and need to be addressed. Ideally the institution should support the academic program and student needs; especially in this critical and growing area that is directly related to global catastrophic events.

3. Curriculum

Listing of courses and dates of most recent course outline update. All courses are scheduled for an update every three years and this will be facilitated by using Curricunet.

Course #	Name	Date
ENVMT001	Environmental Careers	F 2007
ENVMT002	Intro to Sust. Envmt. Syst.	F 2007
ENVMT002L	Prin. of Ecology & Sust. Sys.	F2007
ENVMT008	Ranger/Naturalist Outdoor Ed.	F2007
ENVMT009	Early Childhood Envmt. Ed.	F2007
ENVMT010	Urban Ecology	F2007
ENVMT011	Sust. Urban & Reg. Planning	F2007
ENVMT012	Envmt. Racism & Justice	F2007
ENVMT013	Intro to Envmt. Policy & Law	F2007
ENVMT014AB	Envmt. Impact Reports	F2007
ENVMT015	Environmental Economics	F2007
ENVMT016	Intro to Healthy Comm. Sys.	F2009
ENVMT017A-D	Environmentalism in Action	F 2008
ENVMT018	Environmental Writing	F 2007
ENVMT019	Civilization's Impact on Envmt	S 2008
ENVMT020	Intro to Green Building/Design	F 2007
ENVMT020L	Intro to Gr. Building/Design Lab	F 2007
ENVMT021	Sustainable Energy Options	S 2008
ENVMT022	Energy-Efficient Design/Const.	F 2007
ENVMT023	Intro to Solid Waste/Recycling	F 2007
ENVMT024	Energy Conservation & Auditing	F
ENVMT025	Intro to Wildlife Conservation	F 2008
ENVMT026	Intro to Environmental Health	F 2008
ENVMT027	Ethnoecology	F 2008

ENVMT030	Ecological Restoration: Uplands	S 2008
ENVMT031	Wetlands Restoration	S 2008
ENVMT032	Watershed Assessment	
ENVMT033A-C	Intro to Creek & Wtrshed Rest.	S 2008
ENVMT034	From Dams to Greywater	F 2007
ENVMT035	Intro to Urban Agro Ecology	F 2007
ENVMT036	Intro to Watershed Science	F 2007
ENVMT037	Watershed Teaching for K-6	
ENVMT038A-C	Natural Building	F 2008
ENVMT039AB	Intro to GPS I	
ENVMT039C	Intro to GPS	
ENVMT039D	GIS Reader Software	F 2008
ENVMT040	From Tree to Sea	
ENVMT041	Wildlife & Watershed Rest. Gard.	
ENVMT042	Eco/Culture/Stewardship Cal.	
ENVMT047	Environmental Field Methods	
ENVMT048ND	Living Simply	F 2008
ENVMT048NE	Regenerative Design I	F 2007
ENVMT048NF	Regenerative Design II	F 2007
ENVMT048NG	Regenerative Design III	F 2007
ENVMT048Nk	Cal. Indian Nat. Resource Mgmt.	F 2008
ENMVT048NL	Photovoltaic Design & Installation	S 2008
ENVMT048NM	Energy Management	S 2008
ENVMT049	Independent Study in ENVMT	
ENVMT050	Special Projects in Ecol.	
ENMVT210A/B	Environmental Photography	F 2008
ENVMT501	Sust. Envmt. Syst. Projects	F 2006

3-2 Curriculum Review

Courses are reviewed and evaluated by both tenured and adjunct faculty. Courses are updated every 3 years in order to keep their content current and SLO clear. Proposed courses are discussed at faculty meetings and with the department chair for content and appropriateness to the field. We maintain an open communication with other departments as well as other schools to ensure that our courses are again appropriate and effective in preparing students for both transfer and a professional career. Meetings with other departments, industry advisors and schools are arranged as needed.

3-3 Curriculum Improvement

The department and faculty keep in contact with industry, agencies, professional organizations other schools and colleges and our graduates. At the end of every course, the students complete a written evaluation of the class. These combined types of feedback are used to assess the appropriateness and effectiveness of our courses. New ideas for classes are brought in regularly and we are continuously updating our offerings. All our certificates and majors are being updated as of this writing and a new Urban Farming and AgroEcology certificate cluster is being developed.

Our course outline updates ensure that the most current textbooks or CD's listings have been updated and the outlines presented to the college curriculum committee for approval, and then to the district curriculum committee for final approval. VATEA recommendations are incorporated into the course revisions as needed. We also look at all our prerequisites, co-requisites and recommended preparations to ensure that students are prepared for these classes and modify as necessary. Validation dates are included on the first page of each outline. Using our Advisory Board and extensive community partners we also are able to keep abreast of industry needs and standards for our graduates.

3-4 SLO

Every new class which is written as well as any class which is being updated, revised or taught each semester has SLO as part of the course outline. This process will enable us to complete SLO's for all courses. We are developing a list of all our courses that have SLO in order to facilitate the remaining classes as quickly as possible. We also use student evaluations to complete the assessment process. We have programmatic SLO's and a map.

3-5 Program Outcomes

As shown in our SLO map, Our faculty are practitioners in the field and use the most current hands-on real world field laboratories. The basic scientific law of Ecosystems is that everything is interconnected, thus interdisciplinary. Therefore, the Program's Learning Objectives are field oriented and interdisciplinary and at their base. Students are prepared for solving problems on the job or transferring to 4 year or graduate schools.

Communication

The Environmental Management and Technology program is built on understanding the whole context of all our students, staff, faculty and the subject content. We employ verbal, oral, and graphic communication among instructors and staff, between students, and in the classroom. It is our goal to understand our audiences, be sensitive to the greater context and implications of inter-personal exchanges, and stay focused on the overall purpose of each communication. We strive to attain this goal in our classes through the use of written essays, oral presentations, graphic products, class discussions and debates, internet groups, and assigning state-of-the-art readings. Many of our student projects are implemented with community partners based on communication and feedback with them.

Critical thinking

The Environmental Management and Technology program promotes clear critical thinking and problem solving as the basic required parts of our curriculum, and our overall operations. Through project based assignments in real world settings, students are empowered to develop creative and practical approaches and solutions to the issues they will face as professionals and citizens. We incorporate critical thinking exercises and techniques in each of our classes, through active classroom discussions, and through addressing the issues that arise in our field and with our community partners with a national and global perspective. The project based assignments require critical thinking at every step in the process from choosing a project to its implementation. We do not rely on memorization or multiple choice testing since these skills are not required in the workplace.

Quantitative Reasoning

The Environmental Management and Technology program promotes college-level mathematical reasoning in our courses, and to empower our students to develop theories and reach empirical conclusions. We do this through the use of energy, geometry and construction calculations in our Green Building and Energy Technology classes, population calculations in our biotic courses, land area and water flow calculations in Watershed classes, and survey and social metrics in our policy and planning classes.

CULTURAL AWARENESS

The Environmental Management and Technology program promotes cultural awareness in our classes, and recognizing the importance of diversity in our department, in our professional, and in the make up of our cities, state and country. We do this with a diversity in our faculty and staff of 60% non-white and by studying Environmental Justice, and by visiting and working in urban, rural, and natural areas to study the interaction of people and place in our Field Studies classes.

CIVIC ENGAGEMENT AND ETHICS

The Environmental Management and Technology program promotes responsible citizenship and ethics as key parts of our curriculum. We do this in all our classes by covering laws, codes, licensing, and professional ethics, by promoting ecologically sustainable principles, by stressing the value of environmental stewardship, by undertaking community outreach programs, by taking on design work for underfunded public institutions, and by forming liaisons with public agencies. These are the community partners the ENVMT program is working with this academic year.

Hayward Recreation District Shoreline Interpretive Center

YES High School

Green Civic Summer Program

Green Workforce Development, City of Oakland Redevelopment

East Bay Regional Park District w/ Richmond Shoreline Open Space Alliance

Friends of Sausal Creek

Native Here Nursery

Montclair Hillside Garden Club

Ashland-Cherryland Alameda County Sheriff Dept. Local Farming Program

Stopwaste/Alameda Co.
Healthy Cities Initiative
Partners in Education
East Africa Environmental Initiative
Friends of Alhambra Creek
Housing Ourselves
Oakland Mayor's Task Force
Norcal Student Environmental Network
Allen Temple Re-Entry Program

INFORMATION AND COMPUTER LITERACY

The Environmental Management and Technology program is committed to promoting information technology as a key ingredient in learning, professional life, and citizenship. We do this by incorporating smart classroom technology, by teaching computer based energy analysis, by using the Web as a learning resource, by providing Internet access to our facility, by providing Yahoo groups, Facebook and our own website and blogs to allow students, staff, and instructors to stay connected

3-6 Recommendations and Priorities

A first priority is to update the PROMT system and district policy so that we can offer interdisciplinary, team taught and field courses conveniently. We keep our curriculum current and relevant. All our curriculum pattern certificates/majors have been re-written and updated and are ready to be entered into CurricuNet. All curriculum is being reviewed on a three year cycle and during this process SLO will be incorporated. We are developing newly planned curriculum to reflect current industry needs and trends in the work place. New and innovative courses are constantly being introduced and we are planning for fee based classes. Curricular changes which are being considered include:

- An updated 3 level Urban Farming and AgroEcology Certificate
- Advanced Master Naturalist classes and certificate in conjunction with the Biology Department
- Add a class in Urban Forestry.

- Add classes in Healthy City Management
- Add classes in multi-cultural food gardening and cooking
- Add classes in zero waste production
- Complete our interpretive nature trail to connect the Leona Heights City of Oakland trail through the campus to both Skyline Blvd. and the Leona Regional Open Space and serve as a wildfire prevention demonstration project.
- Apply for grant funding to incorporate more of the findings of the David R. Brower, Ronald V. Dellums Institute for Sustainable Policy Studies into the curriculum including the Local and International Collaboration Networks (LINCS) project

We are hoping to improve our facilities to accommodate these new courses and programs. Proposed changes include a new classroom/lab area, a new zero waste prototype lab and shop, a student center with an enlarged library, an outdoor classroom which is under construction, relocating office space in order to increase our main classroom capacity, and a demonstration AgroEcology service building.

4. Instruction

4. 1. Describe effective and innovative strategies used by faculty to involve students in the learning process. How has new technology been used by the department to improve student learning?

Our instructors use a wide range of teaching methods and techniques to involve students in the learning process, including lectures, oral reports, cooperative learning exercises, slide shows, labs, guest speakers, field trips, community outreach projects, building, energy, and planting workshops on our 1 acre demonstration area.

Many of our classes combine lecture (instructor presents material to class) and labs (students work with the information as individuals and in groups) and utilize the methods outlined above.

4.2. How does the department maintain the integrity and consistency of academic standards within the discipline?

Our courses are based on our class syllabi. Our faculty interacts on a regular basis especially in team teaching which, although

being seriously negatively impacted by new college or district policies this has been our most valuable asset for consistency. While the department maintains a standard grading policy, instructors are encouraged to modify it as appropriate. Instructors include grading policies in all their class syllabi, and explain such criteria to each class.

4.3. Discuss enrollment trends of your department. What is the student demand for specific courses? How do you know? What do you think are the salient trends affecting enrollments?

In 2005, we projected a goal of increasing our enrollment by a factor of 3. We are pleased to report that we have doubled enrollment as of Fall 2009 and enrollment has again increased in Spring 2010. Looking at the rosters from the Fall 09 on PROMT/Passport, the average class size at the end of the semester was 26.5. The F09 productivity spreadsheet for Merritt shows the beginning class size as 30. This shows a high retention rate. Our FTE for faculty is 1.43. It shows our productivity at 8.5 which, with the rule of thumb of doubling that # would have an average class size of only 17 which needs to be adjusted upward. The productivity figure should be corrected to over 13 which is above our recommended productivity figure from the 2008 Unit Plan. It shows almost a 3x growth since 2005.

We have surveyed the students in every course for the last 3 semesters about which courses they intend to take and would like to see added. We have created a four year grid showing the frequency of all classes being offered.

The reduced economy, as with all majors, has increased our enrollment. The extensive media coverage of climate change and the environmental or “green” economy has also brought us some new students. We anticipate this now fairly small trend will continue to increase even when the economy recovers. We are proud that our diversity has doubled. Our program has been featured in the media in the last 6 months (OaklandLocal.com, Oakland Tribune, KPFA radio interview) and our faculty serve on civic and government Boards and Commissions all of which give us a growing profile in the community.

4.4. Are the courses scheduled in a manner that meets student needs and demand? How do you know?

Most of our students are employed and request evening and weekend classes. When we offered daytime classes, with the exception of Environmental Careers, they receive very low enrollment. We provide a flexible schedule which allows students to take the greatest number of classes per semester without conflict by using short term dynamically dated classes which meet for longer periods.

4.5 Recommendations and priorities

- Renovate and remodel facility as listed in needs below.
- Promote new courses and non-traditional courses with brochures and web-based listings, to reach out to a wider community of potential students.
- Increase the computer capabilities of the department and make computers available for student use.
- Increase funding for laboratory supplies and equipment as below.
- Collect information on student transfers both in and out of our department, to evaluate enrollment trends and student preferences.
- Collect information on job placement and career development from students who have graduated from our department.
- Develop grant funding to expand work with community organizations for paid internships, teach re-entry students, for off campus inner-city center development, to develop our Housing Ourselves non-profit residential green design and construction project and others. .
- Increase classified staff in order to improve and maintain the 1 acre site for student instruction and public demonstrations.
- Hire a second full-time faculty member.
- Provide full Department Chair release time
- Hire a permanent half time Administrative Assistant

5. Student Success

5.1 Describe student retention and program completion (degrees, certificates, persistence rates) trends in the department. What initiatives can the department take to improve retention and completion rates?

Retention rate: We are waiting to receive our retention rate data.

Course completion rate: Our course completion is 90% to 93% The colleges course completion average was 60%. We have a low drop out rate which is consistent with student success in our program.

Certificate completion rate: We awarded 6 certificates of completion in May 2009. We are a vocational program, and most of our students come to us to acquire on-the-job skills rather than to obtain a certificate or diploma. Our students have been much

older than the college average and more than half are older than 35; half already has a bachelor's degree or better. Beginning in 2007-2008 we substantially increased our high school outreach and about half our students are now under 24.

Department Initiatives to improve retention and completion rates:

- We have initiated a 2+2 school to work program (half of which was just canceled because of budget cuts) and added a certificate designed especially for high school concurrent students
- In order to improve both retention and completion rates the department has initiated a number of strategies.
- Faculty email addresses are listed on syllabi.
- Faculty cell phones, when available, are listed on syllabi.
- E-mail addresses of students are kept in the office in order to be able to contact students and reply quickly to their concerns.
- Office phone is given out to every student and published on our web page and when it is called a live person answers!
- Dept. chair visits every class and welcomes students.
- The Land and People club organizes volunteer opportunities at the Self Reliant House.
- Internships and Scholarships are also available to students. These opportunities increase student success by providing practical hands-on learning which supplements the academic principles learned in class.
- Faculty come early and stay late so they are available to students.
- All student calls and emails are answered as limited staff time allows.

5.2 What are the key needs of students that affect their learning? What services are needed for these students to improve their learning? Describe the department's efforts to access these services. What are your department's instructional support needs?

Key Needs of Students

Orientation and Ongoing Help and Guidance:

Our Student Aide and the shared Administrative Assistant provides day-to-day assistance for student questions. The program coordinator offers individualized course load planning, program certificate options and career counseling.

Facilities for Teaching: (ADA and vehicle access, parking, laboratory facilities, library, computers, study area)

Existing facilities often do not provide adequate space for accommodating large numbers of students and do not allow the

department to offer more than 1 class on-site at a time.

Tutoring and Mentoring: Individual assistance in mastering course materials is a challenge for many students.

We provide the following services to supplement in-class learning:

- teachers refer students to tutors on the main campus.
- full and part time teachers maintain office hours to work with students (full-time faculty hold 5 hours/week; part-time faculty hold 1/2 hour per class per week)
- teachers encourage students to form study groups to prepare for exams and projects
- syllabi and powerpoints are posted on our website

Practical Hands-on skills and practice: In order to be prepared for employment, students must be able to demonstrate practical skills and applications. Our classes emphasize hands-on applications of green building, energy efficiency and measurement, solar installation and repair, water conservation, harvesting, and greywater, green roof and wall design and construction, artisan products, photography, design, site inspection and measurement, wood milling, community organizing, event coordination, small business practices, policy making, tutoring and teaching, ecological restoration field practices and monitoring.

Safety: The Self Reliant House facility as a hands on indoor and outdoor lab presents a set of health and safety challenges primarily regarding lab size and lack of instructional aides when power tools are involved. There is inadequate access, lighting and no permanent fire alarms.

Creative scheduling: In order to reach the widest audience possible, including many individuals who have full time day jobs, the department works to accommodate students by offering classes during the evenings and weekends.

Internet and Library services. The department currently offers a computer with internet access available to students at limited times. We also maintain a department library for in-house use only. Our students have access to the Merritt College main library and there are numerous nearby public libraries, such as the Environmental Design Library, the Forestry library, and the Life Sciences Library on the UC Berkeley campus, as well as the Oakland, Berkeley, and nearby public libraries. However the collection on site needs cataloging and the campus library is not open during our class times.

Financial Assistance: Some students need financial assistance to cover fees and books. In addition to college financial aid our

department publicizes numerous scholarships.

Job Placement. As a vocational program we actively help our students find employment by providing ENVMT 1 Environmental Careers every semester as required for all certificates. We refer students to the many employers who are part of our faculty or network.

Services Needed for students to improve their learning.

Personnel and Student Assistants:

- Existing staffing is not sufficient to maintain or develop current facilities.
- Facility access is inadequate for students and faculty and deliveries or emergency vehicles.
- The Self Reliant House is being built and maintained solely by students and faculty and requires substantial improvements as outlined below.
- Providing students with more hand-on experience, especially for classes held at night, very large classes, and labs for which we do not have the budget for materials like new solar equipment or electric vehicles or landscape restoration.
- Additional student accessible computers: Currently only one computer is fully accessible for all students and staff to use.
- Formation of closer ties of faculty and students with industry employers, mentors, and Department Alumni.

Departments efforts to access these services

The department funds instructional aides and mentors out of funds generated by grants. We hope to develop fee based offerings in order to supply much needed funding for instructional aides.

We have extensive collaborations with community partners which provide us with lab supplies, information, field sites, and funding.

With the Dean and campus administration, we have requested and been granted telephone line repair (completed 1/10), temporary internet access, ADA path and lighting (in progress), heater repair, permanent data cable web access (in progress), vehicle delivery access (in progress), security fence repair (possibly in progress)

Classroom renovation is essential in order to bring technology into the classrooms and provide adequate seating and operate more than one class or lab concurrently on site.

Outreach to industry in an advisory capacity is essential.

Department's instructional support needs

Personnel: We have 1 acre of land laboratory and 4,000 square feet in 5 structures and a cross campus nature trail. The Program needs a half time lab technician to help maintain these facilities.

Student Assistants: We employ a student assistant, but the labs need more than one pair of eyes and hands to help. This is a critical safety and instructional need especially with classes now with 50 enrolled.

5.3 Describe the department's effort to assess student learning at the course level. Describe the efforts to assess student learning at the program level. In which ways has the department used student learning assessment results for improvement?

Departments Efforts to Access Learning at the Course level

Our students earn good grades. In 2008-09, of total students, 75% received an A or B grade.

Student Learning Outcomes for every course will be completed as mentioned above. We are assembling student course evaluations into one binder for faculty and students to review.

Department efforts to assess student learning at the Program level.

We have awarded 3 times as many certificates of completion in 2009 as in the recent past years. These do not show on college records because the certificates were not approved yet on the state level. We are addressing this by having re-written all our certificates to be 17.5 units maximum. These revised patterns are ready to log on to CurriCunet.

Our October 2009 survey of student opinions about the Self Reliant House as a teaching facility yielded 50 very positive responses to the facility and to our teaching methods.

Another indicator of student success at the program level are the numerous jobs and job promotions that students get after going through our program. than students.

In which ways has the department used student learning assessment results for improvement?

Our student course evaluations and our initial 2004 SLO assessments show strong student learning outcomes. Given additional staff time we will repeat these assessments for each class, We continue student course evaluations for each course and the Program Coordinator visits each class and provides feedback to the faculty members.

Recommendations and Priorities

1. Continue with the facilities upgrades
2. Increase internship and volunteer programs.
3. Develop course Rubrics for each class for statistical surveys of student learning assessment.
5. Place an Alumni blog on our website.
6. Continue our very active community partnership program

6. Human and Physical Resources

Currently there is 1 full time faculty member and 4-6 part time instructors who teach approximately 40% of our classes. Additionally there is 1 half time Student Instructional Aide. We also offers internships and volunteer opportunities for both students and community members.

Our facilities, which are on 1+ acres, include 1 classroom, 1 greenhouse, tool shed, a green building demonstration1 unfinished

lab/office building, outdoor planting and construction area, and multiple demonstration installations from solar panels to greywater filtering. Equipment includes everything from hand tools and power tools to chain saws, energy measuring equipment, solar equipment, and water quality measuring field kits. Students in labs utilize most of the grounds, the greenhouse, outdoor area, as well as all of the equipment.

Restricted budgets have barely kept pace with the cost of replacing or repairing old equipment. Advancements in technology have not been forthcoming in the classrooms and new methods of plant propagation such as tissue culture cannot be explored. The development of the grounds has also been severely limited by both the lack of funding as well as the necessary personnel.

Staffing needs include:

- A full time instructor possibly shared with Landscape Horticulture to share the increased offerings and large class size in Urban Farming and AgroEcology and community outreach.
- A part-time permanent 20 hours/week science lab technician to help maintain the 1.5 acre facility and equipment.
- A part-time permanent Administrative Aide
- An additional Instructional Aide for the several courses which now have over 50 enrolled
- A full Department Chair release time – the 45 minutes per week currently allotted is inadequate. The one full-time faculty is replacing 2.7 previous FTE

Facility needs include:

- Improved ADA access to lab areas..
- Repair of greenhouse
- Chairs/Tables/Lamps for library.
- Additional desks for students in H108/H101
- Ceiling mounted audio visual for all classrooms.
- Improve the signage on the grounds.
- Improve the access on all paths throughout the facility for students in lab classes.
- Provide location and instructional interpretive signage

Recommendation and Priorities

- Increase classroom space in order to serve more students.
- Improve the outdoor facilities as listed below.
- Hire the additional staff necessary to serve the facility.
- Remodel facility to bring in up to current student needs and technology advancements.

6. Human and Physical Resources Needed

Our goal is to complete our Environmental Center Self Reliant House Facility and landscape so that it will be able to accommodate double the student population we now serve. We plan to increase the number of tours we conduct especially as our facility becomes known as a demonstration of the gamut of “Green” technologies and design. We anticipate that with proper marketing and support staff, we will be able to operate ongoing public access workshops in a handsome facility similar to the very successful privately owned Solar Living Center in Hopland. Ours will be competitive since it is much closer and much less expensive. We will be running more short and fee based courses to reach out to the community.

Human Resources Needed

- An Instructional Aide is desperately and immediately needed to keep the student/teacher ratio at 1/12. We have a lab course beginning in March that has 50 students enrolled and only 1 instructor.
- A full time instructor possibly shared with Landscape Horticulture to share the increased offerings and large class size in Urban Farming and AgroEcology and community outreach.
- A part-time permanent 20 hours/week science lab technician to help maintain the 1.5 acre facility and equipment.
- A part-time permanent Aide to help with enrollment details, outreach and lab prep and supervision
- An additional Instructional Aide for the several courses which now have over 50 enrolled
- A full Department Chair release time – the 45 minutes per week currently allotted is inadequate. The one full-time faculty is replacing 2.7 previous FTE and causing stress and criticism from administration.

Physical Facility and Equipment Resources Needed:

Safety Saws, some chemicals and electrical equipment are used in hands-on lab courses. Safety Goggles, gloves and masks are used when appropriate. Flammable materials are stored in a metal case. There is a cell phone on site for emergency use.

and the 3 land line telephones have been repaired,

1. An appropriately lighted and surfaced ADA entry path and gate needs to be installed.
 2. District locks have partially been installed
 3. Fire alarms need to be installed
 4. Emergency vehicle and truck access is being designed.
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- Instructional and meeting/office areas need to be enclosed with sliding glass doors or completed.
 - New computer lab will be needed once the proposed fibre-optic data cable is installed.
 - There is only 1 classroom space that is completed.
 - The front entry porch, the office areas and the rear covered area and the greenhouse meeting space need sliding glass doors.
 - The barn storage and lab area needs completion and a staircase to the upper level.
 - Projector/ laptop stand.
 - Projector screen, preferably mounted on chalkboard.
 - Water tank, >1000 gal for catchment at greenhouse and materials trailer & corresponding catchment/ irrigation supplies.
 - There is continual need for field and lab supplies to be replenished
 - We need more construction power tools; especially shop tools
 - Photo Voltaic panels which can be disassembled and re-assembled
 - Building energy performance and safety measuring equipment
 - Install our high efficiency irrigation system
 - New computers
 - CAD and GIS programs and printer
 - Ongoing landscape materials
 - Ongoing office supplies
 - Portable overhead projector repair

- ❑ Laptop computer
- ❑ Projector bulbs
- ❑ Copy/Printer machine ink cartridges
- ❑ Fax
- ❑ Automatic slide copier
- ❑ Scanner
- ❑ Ongoing construction materials
- ❑ Student built electric on-campus solar electric vehicle
- ❑ Agriculture/gardening tools and carts
- ❑ First aid kits
- ❑ Air quality monitoring equipment
- ❑ Wind power electric generators
- ❑ Solar site measurement equipment
- ❑ Heat pump demonstration
- ❑ Skylid demonstration
- ❑ Living Machine Water Quality demonstration
- ❑ “Green” desk chair
- ❑ Student built “green” compact furniture for computer lab
- Demonstration fence and gate completion (as class design project)
- Complete Urban Farming area at foot of slope with fence and Solar Electric panels from Chevron
- Student built and designed farming shed as Green Building demonstration – Earthship package
- Signage throughout campus directing to the Environmental Center.
- Complete rear overhang classroom with sliding glass doors, insulation and heating
- Complete student area at entry porch as above.
- Separate office and meeting areas from classroom with sliding glass doors.
- Build staircase to catwalk which provides access to mezzanine storage and second floor storage of barn and solar panels
- Student built outdoor classroom adjacent to Green Building Demonstration Trailer

- Complete landscaping
- Upgrade permeable surface on pathways
- Install demonstration irrigation and controller
- Repair gas line for stove and heaters
- Provide water heater
- Complete a nature interpretive trail across campus linking two wildland parks trails systems
- Provide nature interpretive displays in the Environmental Center and signage along trail
- Complete wildlife corridor and fire safe ecological restoration display and trail with signage
- Enhance Vernal Pool as a protected demonstration site and control feral cats
- Provision Environmental Center as an emergency response facility since it has Solar Electric and stored water
- Build natural hillside integrated demonstration outbuilding
- Storage shelves and lockable cabinets
- Replace all temporary lighting with high efficiency demonstration lighting and controllers
- Provide insulating operable translucent window coverings for daytime projector operation
- Photovoltaic panels, wiring devices, inverter
- Replace Photo Voltaic panels
- Add energy efficient lighting demonstration fixtures
- Add low sone (quiet) bath vent fan fixture
- Add induction cook top and convection oven for clean air efficient cooking demo.

7. Outreach and Articulation

Both student retention and success are over 90%. The average age of the students in Environmental Management exceeds that of the typical Merritt college student. Additionally, over 50% of Environmental Management students have a bachelors degree or higher. Like other environmental programs, Merritt's typically has dedicated students who have searched to find our program. They are changing or upgrading their jobs, looking to transfer or go to graduate school, or taking courses for personal interest. Our faculty are working professionals in the field which give students current information and makes them more employable. A number usually are hired out of the classroom by the instructor's companies.

With additional staff and funding, we will be able to develop our extensive collaborations with industry and agencies in order to both train their staffs as well as place our students. We will be visiting Peralta classrooms with literature and powerpoint

presentations in order to recruit students. We will expand our cross-district offerings by teaching a few courses on other Peralta campuses which should serve to recruit students to Merritt. We have our own web site and that is going to be advertised by the District so that it is easy to find it on Google. If we continue to receive foundation funding as we currently do, we will continue to publish a pamphlet about the program and distribute it more widely when student aides and the new department secretary allow us to free up time to do marketing. We plan to coordinate demonstrations and sales with the Horticulture Plant Sales and develop fee based classes.

For vocational programs

7.1 Describe the department's connection with industry. Is there an Advisory Board or Advisory Committee for the program? If so, how often does it meet? Is the program adequately preparing students for careers in the field? How do you know?

The full time and adjunct faculty are practitioners in their fields and maintain close ties with the most current standards. This provides good interaction concerning new products and industry trends. Our faculty are licensed engineers and contractors, heads of agency programs, owners of restoration businesses, have major corporations on their client lists, on the Board of the American Planning Association, the Environmental Justice Coalition for Water and other civic boards and commissions. We meet regularly with our advisors who are also guest lecturers and community partners. (see list above)

We are planning to host an alumni page on our website www.ecomerritt.org in order to connect current students with the many alumni we have placed or who have found environmental employment.

7.2 Have students completing the program attained a foundation of technical and career skills? How do you know? What are the completion rates in your program?

Students completing the basic certificate requirements for have obtained both academic learning and practical skills in environmental management through lecture and laboratory practices. In order to successfully pass courses students must utilize their reading, lecture, and lab assignments to produce and present a complete project at the end of each semester. The department had a 93% completion rate for Fall 06 and a 90% completion rate for F 09.

Students completing environmental technology classes and certificates are held to the same high standards as those found in the

professional world. Specifically these standards include the ability to produce high-quality graphic products, to conduct a thorough site analysis, show a knowledge of environmental principles, identify and evaluate materials and equipment and installation techniques, and generate solutions that respond directly to our on site or partner needs. Our faculty are all practicing professionals, and are able to determine that their students are meeting these objectives by:

1. By assigning real-world projects on Merritt campus, city, school and regional park properties.
2. By evaluating professional projects that students bring to class.
2. By soliciting feedback from clients (private individuals, owners of design firms, public agencies, non-profits, etc.) for whom our students prepare designs or go to work.

7.3 What are the employment placement rates? Include a description of job titles and salaries. What is the relationship between completion rates and employment rates?

Currently no job employment rates are known as we do not track specific job numbers, and do not have staff time to track students. We hope that using social media, we can have a better connection with what students do after their time with the program. The current feedback we have from parks, green building firms and restoration firms and non-profits where our students make up as much as 100% of their staffs or boards of directors is excellent.

Jobs range from entry level interns at \$10/hour to academic department chairs and environmental lawyers in the \$80 to \$100K range. There are well over 50 job titles since we have a comprehensive program.

7.4 What industry trends are most critical for the future viability of the program? How do you know? What are the implications of these trends for curriculum development and improvement?

As we mentioned above, we are a leader in Environmental Management and have helped create some of the trends. Our 1994 Green Building Materials conference at the Environmental Center Self Reliant House led directly to the West Coast Green conferences which are now attended by over 12,000 people and have attracted keynote speakers such as Nobel prize winner Al Gore. It also kicked off the Alameda County Source Reduction and Recycling Waste Management Board's demonstration program which donated the \$100K demonstration trailer to us.

We have over 25 demonstration hands on installations at the Center. The most recent was designed by Rana Creek, the designers of the Academy of Science green roof. Our faculty are well positioned leaders in the field and bring the cutting edge information

to our students.

For transfer programs

Describe the department's efforts in meeting with and collaborating with local 4-year institutions. Is the program adequately preparing students for upper division course work. How do you know?

We share some faculty with UC Berkeley's environmental programs and our classes visit their facilities. We received a grant to ensure that our Ranger Naturalist program fits with 4 year schools and the industry standards as described for us by professional association officers.

For all instructional programs:

1. The primary avenues we use to ensure that our department responds to the needs of our constituencies include student feedback, recommendations from our Advisory Board, advice from colleagues in the field, professional guest speakers, and the deep professional skill of our faculty. We maintain close ties with both present and past students, and their feedback is essential.
2. There are no other programs within the Peralta district that offer a comprehensive environmental curriculum which is tracking all the emerging and rapidly changing trends in the industry. In the past, single subject programs like solar only or hazardous materials only have lasted only a short time because they would saturate the field and the trend would subside.
3. As previously noted, we are strongly connected to industry and community partners and receive media attention.