

**Campus as a Living Lab Grant Program – Status Report October 2014**

**THE ARCHAEOLOGY OF SUSTAINABILITY  
A First Year Seminar**

By

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CSU Monterey Bay

The CSU Chancellor's Office Campus as a Living Lab grants program permitted this investigator and his team to develop a First Year Seminar and online Archaeology of Sustainability internet portal launched this term under the guise of FYS 158 (The Archaeology of Sustainability). Given that it had been some years since this investigator last taught a freshman entry-level course, the opportunity to once again do so has inspired a commitment on the part of this senior faculty member to offer the Campus as a Living Lab course (developed under the grant) on a yearly basis, with the next offering already having been scheduled for fall 2015.

The course presently includes a cohort of some 32 freshman (First Year Seminar) students who are presently engaged in a modern material cultures study centered on waste management and recycling in the CSU Monterey Bay dormitories. Otherwise termed Garbology by the popular press and other practitioners, Garbology has as its objective the analysis of trash samples culled from selected sources for the purposes of monitoring dietary preferences and practices, waste management and disposal patterns, recycling and sustainable practices, and gender, age, and ethnicity-based variations represented across each of the aforementioned patterns of human behavior.

With the support of the Campus as a Living Lab Program, this project achieved a host of objectives centered on the development of a First Year Seminar devoted to the archaeology of sustainability.

First, Professor Ruben Mendoza and graduate teaching assistant and lecturer Jennifer Lucido developed the new FYS 158 (The Archaeology of Sustainability) course offering. Given that it was first necessary to submit the course to the Campus Curriculum Committee for review and approval, all materials for the course offering were developed in advanced and submitted over the course of the grant period. During this period, a comprehensive readings list, available videos pertaining to sustainability were identified, and a schedule of lab deliverables was developed. The curriculum review process necessarily delayed implementation of the First Year Seminar as GE course considerations and approvals were necessary from the outset. Given that this process generally requires an entire academic year for review and approval, we are fortunate that all necessary learning outcomes and project-based learning materials were articulated such that the process was expedited somewhat. As such, the course was formally launched in the fall of 2014, and is presently in progress.

Second, Professor Mendoza and Ms. Lucido then generated a comprehensive *iLearn* course management system syllabus for the FYS158 (The Archaeology of Sustainability) located at [ilearn.csumb.edu](http://ilearn.csumb.edu). The *iLearn* syllabus integrates course materials, Video Reviews, online learning labs, Discussion Forums, and Weekly Garbology Profiles and Garbage Project Database Excel Tables. The Weekly Garbology Profiles, Discussion Forums, and Video Reviews serve to capture student perspectives, all the while documenting their respective learning experience on an ongoing basis. The *iLearn* syllabus was launched in August of 2014 in anticipation of registrations pertaining to the FYS 158 course offering.

Finally, the project team, including Professor Mendoza, Ms. Lucido, and Information Technologist Christian Graves undertook the design, development, and launch of an online database portal and *WordPress* website prototype. See Appendix 1, below, or <http://archsustainability.org/>. A major portion of our respective efforts devoted to assuring a user-friendly online repository for all modern material cultures or garbology data and observations collected by the FYS 158 student cohort (see Appendices 1 and 2). **Note:** The Archaeology of Sustainability website remains under construction, and will be optimized for more rapid downloads in the coming week, and the number of images that constitute the 16-image banner reduced as per said optimization. Even so, data is presently being entered into the Garbology Database on an ongoing basis.

In the midst of working to develop the Archaeology of Sustainability website, the Principal Investigator was notified that he was awarded a 2014 National Endowment for the Humanities Summer Institute fellowship in Oaxaca, Mexico. As such, this drew valuable time away from our summer efforts to complete the videotaped lectures that intended to further enhance the Archaeology of Sustainability course and website. We presently anticipate the completion of some ten to twelve circa 8 to 10-minute videotaped project interview clips centered on the implementation of the modern material cultures project and its implications for campus sustainability initiatives. While we anticipate the upload of video and other multimedia interviews in the coming weeks, those resources specific to the modern material cultures project will not be completed until such time as the present cohort of students have had the opportunity to complete their lab and field studies.

**ARCHAEOLOGY OF SUSTAINABILITY**  
WITH PROFESSOR RUBÉN MENDOZA

**Course Description:** Sustainability in prehistory and non-Western traditions constitutes the scope of this archaeological survey and project-based learning lab centered on the evidence for sustainable practices in and beyond the American hemisphere. In sum, we explore just how past cultural practices differ from or align with contemporary approaches to sustainability? And ask, what does archaeology reveal about the successes, limitations, and failures of past human efforts to generate sustainable practices? *General Education Requirement: D1: Social Sciences*

**FYS 158: Archaeology of Sustainability**  
Professor Rubén G. Mendoza, PhD, RPA

**Days, Times, and Locations**  
**Campus Lecture/Discussion Location:** Mondays & Wednesdays, 10:00 am - 11:50 am, Oaks Hall - Rm 101 - map and for Wednesday labs TBA  
**Classroom Lab Location:** Wednesdays, 10:00 - 11:50 am on select campus sites or at the Building 58-137 Archaeology Lab (Green Hall) by arrangement TBA - map  
**Office Hours:** By Appointment on Tuesdays, 2:00 to 4:00 pm, Building 66A-116 - map; or Peter's Coffee Shop in Building 508 (Main Library)

Lab Instructor: Jennifer Lucido, Lecturer, BA, MAIP (jlucido@csumb.edu)  
**Online Office Hours:** Available by email at [jlucido@csumb.edu](mailto:jlucido@csumb.edu), or iLearn forum post.  
Institute Lab Location (TBA): Green Hall, Building 58, Room 137, Campus Times TBA - map

**Required Texts**  
Sabloff, Jeremy A. *Archaeology Matters: Action Archaeology in the Modern World*. Walnut Creek, CA: Left Coast Press, Inc. 2008. [ISBN: 978-1-59874-089-9 paperback]  
Humes, Edward. *Garbology: Our Dirty Love Affair with Trash*. New York: Avery, 2012. [ISBN: 978-1-58333-523-9 paperback]  
Mann, Charles. 1491: *New Revelations of the Americas Before Columbus*. Knopf Doubleday Publishing Group, 2006.

**Attendance:** Daily class attendance rosters will be maintained throughout the term. As such, your professor reserves the right to drop you from the class roster if you miss three consecutive class meetings. However, it remains your responsibility to formally drop the class should you decide to do so, and failure to formally withdraw by the last census date (should you decide to drop) will result in the grade of Fail.  
**Due Dates:** Please note that all due dates are time-stamped in iLearn for restricted online submission, and iLearn will block the attempted upload of late assignments. In addition, it should be noted that I do not accept hard copy submissions of assignments as all assignments need to be posted electronically via the iLearn syllabus links created for that purpose. NOTE: You are individually responsible for keeping track of any and all DUE Dates for assignments or deliverables...as they are all posted on a weekly basis with each assignment so noted. Normally, you are afforded only until the end of the given week in which the assignment was posted in the iLearn schedule.  
**Late Assignments:** I can not and will not accept late assignments, except in the case of medical excuses provided by a physician or the campus clinic, a documented death in the immediate family, or in those instances where ADA (American with Disabilities Act) accommodations have already been arranged by contract. Late assignments will not be graded under any circumstance, and will thereby receive no credit. Note: Depending on other course content and demands on your professor's time, you may or may not be reminded of impending deadlines for assignments...so it is incumbent on you to review the iLearn syllabus on an ongoing basis if you have questions regarding course DUE dates!

**ACTIVITIES**  
Assignments  
Attendances  
Forums  
Quizzes  
Resources

**PEOPLE**  
Participants

**ATTENDANCE**  
Attendance  
Take attendance  
Add  
Report

**SEARCH FORUMS**  
Advanced search

**LATEST NEWS**  
Add a new topic...  
Jennifer A. Lucido 28 Oct  
Native American Studies  
Aly Reception  
Jennifer A. Lucido 27 Oct  
NO CLASS - Wednesday  
October 29  
Ruben Mendoza 22 Oct  
ASSIGNMENTS DUE -  
Midterm Book Review /  
Starters

Figure 1: FYS158 iLearn Syllabus located at <http://ilearn.csumb.edu>.

## Teaching the Archaeology of Sustainability - Fall 2014

This course has been designed and scaffolded into two distinct learning frameworks. During the first half of the semester, students were introduced to ancient and non-Western innovations in sustainability to reassess contemporary approaches to same through the lens of cultural ecology and environmental archaeology. During the second half of the semester, students engaged an active and project-based learning experience that addresses Modern Material Culture studies, including an Environmental Archaeology Field Study of campus buildings.

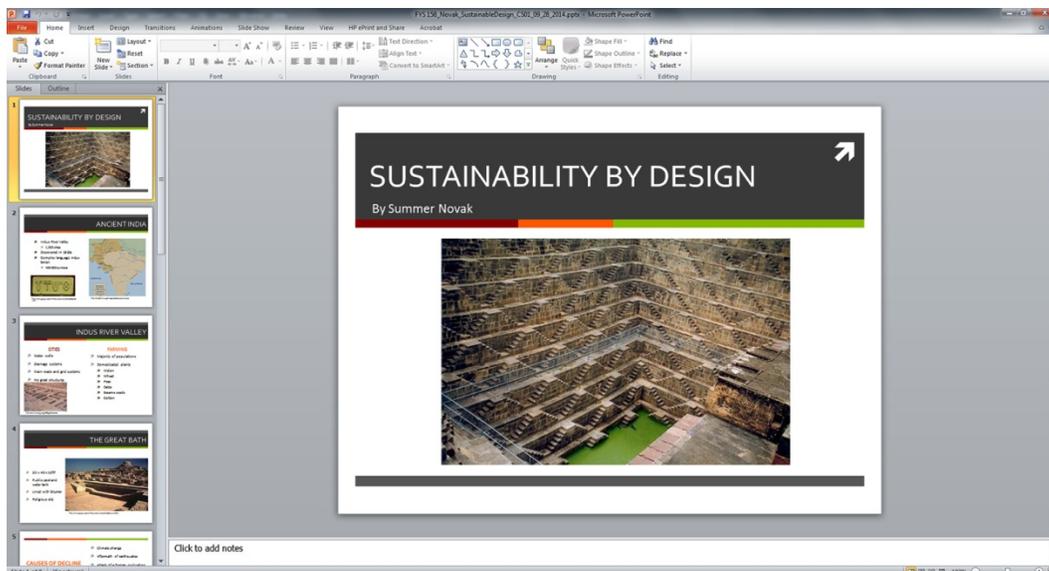
### *The Archaeology of Sustainability*

Students engaged in lectures and topics that explored questions in sustainability, including:

- How do past practices and efforts at insuring sustainability in prehistoric and non-Western agrarian settings differ from or align with contemporary approaches to sustainability in those same regions?
- What benefits and constraints, or social and environmental consequences (such as those borne of demographic considerations), have been found to accrue for those societies whose sustainable practices proved particularly successful?
- How past cultural practices differ from or align with contemporary approaches to sustainability?

- What does archaeology reveal about the successes, limitations, and failures of past human efforts to generate sustainable practices?

So as to promote student consideration of said themes, students are required to present three in-class 5-minute *PowerPoint* presentations for their cohort. Students explored various topics that addressed sustainability, innovation, resource maximization, recycling, environmental management, urban design planning, the California drought, ethical consumerism, green building, renewable energy, etcetera from an archaeological standpoint. A selected number of these PowerPoint presentations were posted to the Archaeology of Sustainability website at <http://archsustainability.org/#!slide-shows/>.



**Figure 2:** Sample Student PowerPoint for CS01 Case Study.

Students in turn submitted Weekly Discussion Questions (through midterms) based on the required class text, *Archaeology Matters: Action Archaeology in the Modern World*, by Jeremy A. Sabloff. The Weekly Discussion Questions served to engage students more fully with assigned readings, thereby fostering critical thinking about issues of sustainability. Such questions inspired one student in another section to assert that, and we quote:

“I believe that being present in class and the discussion questions for me were most useful in the growth and learning requirements of this course. Being present allowed me to listen to lectures in which we are able to ask questions and get information I would not have received had I not attended class. Although at first, the discussion questions seemed like a “pain in the rear” to me, I have realized that knowing that I have to write the questions makes me, first of all, do the reading and then because I’m actually thinking about the reading. This is one thing I may continue going forward [with] in other classes.”

### *Environmental Archaeology Field Study*

Environmental archaeology seeks to examine and assess the physical environment and its resources relative to human adaptation and exploitation of those environments under consideration. In an effort at conducting an environmental archaeology field study of the California State University, Monterey Bay, students identified sustainability-related resources relative to the campus by way of a survey to be presented to the campus facilities manager in the coming weeks.

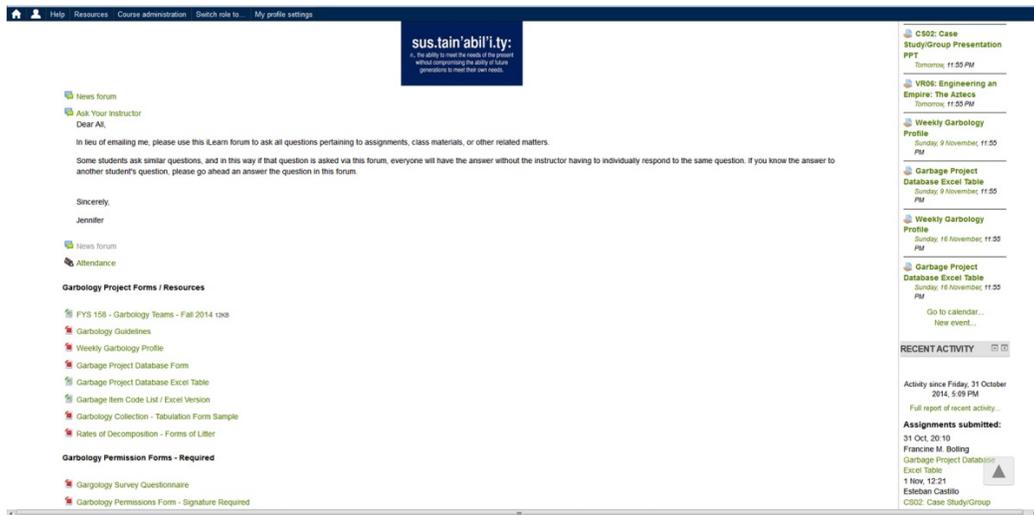
To that end, students identified instances in which the campus fell short in its efforts to afford sustainability-oriented options. As such, students were tasked with rating campus buildings on the basis of the sustainability index. Sustainability Index = 1 to 5: (Optimal use of sustainable options was equivalent to a 5 on the scale deployed in the survey instrument used by the students to index sustainable practices). Students then generated an inventory of sustainability resources available relative to buildings noted on the campus map. Sustainable options include recycle bins, waterless urinals, dual flush toilets, drip sprinklers, solar panels, paper plates, low volume faucets, etc.

### *The Modern Material Cultures or Garbology Study*

Students are required to complete a Midterm Book Review of *Garbology: Our Dirty Love Affair with Trash*, by Edward Humes. *Garbology* provided students with these perspectives and approaches necessary to contextualizing different issues pertaining to waste management in the United States. In addition, this book served to inform students as to research questions and methodologies specific to waste disposal practices.

Students are currently engaged in a project-based learning experience concerned with investigating waste disposal practices in the CSUMB Freshman Residence Halls. To launch the proposed effort, students were organized into six learning cohorts or project teams. Each team processes a weekly garbage project sample collected by the students designated for that role. Team members collaborate in the sorting and coding of different material types in order to generate a body of data necessary to assess dietary considerations, consumer behavior, and waste disposal patterns against ethnicity, gender, age, and related socio-economic variables.

Data collection will be facilitated by way of a tandem *WordPress* and *Drupal*-based Content Management System (CMS) enhanced in this instance so as to provide improved search, analysis, and management capabilities by way of a *Garbology Database* located at <http://archsustainability.org/#!garbology/>. In addition, the *WordPress* website will serve as a portal to Garbology Project data entry and student project content dissemination well into the future. The *WordPress* site will in turn serve to promote the First Year Seminar and the Social and Behavioral Sciences program more generally.



**Figure 3:** Section of Garbology Project Forms posted to iLearn syllabus

Students will be tasked with a *Final Garbology Lab Report* where they will assess and interpret waste management practices, household consumption and disposal, recycling, and consumer behaviors reflecting ethnicity, gender, age, diet, and correlated socio-economic variables based on their campus residence hall trash samples.

Students will use their trash samples to address a host of answer research questions, including:

- How might the collection and analysis of modern material culture or trash samples from contemporary campus contexts permit planners to best assess those questions pertaining to recycling, commuting, and marketing behaviors; dietary preferences (healthy choices and or options); and related residence life questions and considerations?
- What might fluctuations and or radical changes in documented dietary practices (as discerned from trash samples) have to tell us about the scheduling of student stress and time management thresholds borne of a host of modern material culture indicators?



**Figure 4:** The FYS 158 student cohort pictured during trash sort and documentation in fall 2014.

## Assessment

Students will complete an End Term Self-Assessment. This will provide the PI with a basis for considering student feedback and reflection regarding individual progress in meeting the requirements of the course. Students are thereby tasked with considering their overall performance and participation in the course.

A sample of Self-Assessment questions include:

1. What key concepts and areas of study drawn from selected Lab and or Major Deliverables offered to date proved of greatest interest to you? How do you intend to use those concepts and areas of study in your final class project and or report?
2. Please provide recommendations on how you might improve on the content and type of Lab and or Major Deliverables offered to date. What might you like to see added in the way of Lab and or Major Deliverables for the future?
3. What learning strategies proved most useful to your growth and improvement in meeting the learning requirements of this course? Moreover, please identify those areas of your learning style that you believe require further improvement. Please identify what you see

to be your primary strengths with respect to Lab and or Major Deliverables completed to date.

4. Given what you have learned so far in the way of the archaeology of sustainability and garbology, please identify a course or world area that you believe would enhance the archaeology, anthropology, and or social and behavioral sciences offerings here at CSU Monterey Bay.



**Figure 5:** An FYS 158 student sorts trash samples by material types and recyclables.

### **Future Outcomes**

The First Year Seminar offering of FYS 158 (The Archaeology of Sustainability) will be maintained in the curriculum, and re-offered for the fall term of each academic year, with our next offering already scheduled for the fall 2015 academic term. The course will expand seminar content to reflect ethical protocols and considerations, all the while seeking to promote personal and social responsibility, regarding sustainable practices within and beyond the CSU Monterey Bay campus residential community. Once end of term assessments have been reviewed and assessed for recommendations from our students, we will seek to improve the curriculum and emphasis on a First Year Seminar research program focused on sustainability and work to

maintain an ongoing FYS program that serves to introduce First Year Seminar students to the concept of sustainability, and the particulars of campus waste management practices and potentials in the years to come.

Our First Year students will ultimately prove the beneficiaries of the FYS 158 practicum offering, particularly as the most popular upper division course activity on record for the nineteen years of the principal investigator's teaching experience at CSU Monterey Bay remains the Modern Material Cultures and Garbology Project Lab. Given the demonstrated potentials for inspiring upper-division transfer students, and home-grown non-majors, the Archaeology of Sustainability, and its First Year authentic research component stands to benefit both our students and the campus community writ large. Ultimately, that suite of intellectual and practical skills addressed by this First Year Seminar seeks to introduce students to the promises and pitfalls of qualitative and quantitative data analysis and interpretation, social impact assessment protocols and ethical considerations, critical and inventive thinking, and a best-practices approach to sustainability. To the extent that we achieve any one or more of those goals noted, our emphasis on the merits of sustainable lifestyles has already resonated with this First Year cohort.

# Appendix 1: Archaeology of Sustainability Internet Portal / Prototype



Figure 1.1: About

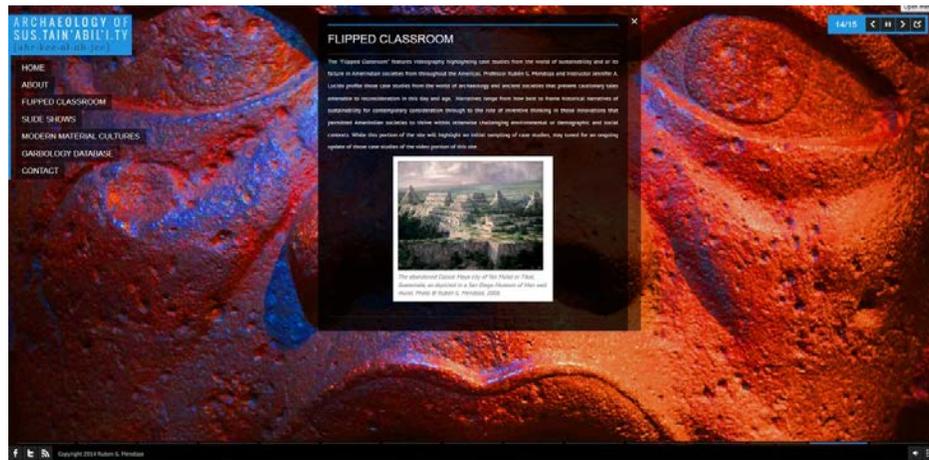


Figure 1.2: Flipped Classroom



Figure 1.3: Slideshows



Figure 1.4: Modern Material Cultures



Figure 1.5: Garbology Database



Figure 1.6: Contact

## Appendix 2: Archaeology of Sustainability Online Database / Prototype

The screenshot shows the 'Manage Garbology' interface. It features a search bar, a table of entries, and a sidebar with navigation options. The table contains the following data:

Date Modified	Material	Brand	Catalog Number	Type	Date Recorded	Recorder
2014/10/31 12:11:32 PM	Nut Mix	Cracker Jack	1.00		10/20/2014	Recorder Account
2014/10/31 12:12:00 PM	Beverage	Brnk	2.00		10/20/2014	Recorder Account
2014/10/31 12:12:52 PM	Beverage	Starbucks Refresher	3.00		10/20/2014	Recorder Account
2014/10/31 12:13:05 PM	Soda	Mountain Dew	4.00		10/20/2014	Recorder Account
2014/10/31 12:13:25 PM	Juice	Naked	5.00		10/20/2014	Recorder Account
2014/10/31 12:13:36 PM	Juice	CJ Evolution Fresh	6.00		10/20/2014	Recorder Account
2014/10/31 12:13:48 PM	Burger		7.00		10/20/2014	Recorder Account
2014/10/31 12:13:59 PM	Sandwich		8.00		10/20/2014	Recorder Account
2014/10/31 12:14:08 PM	Egg Yokes		9.00		10/20/2014	Recorder Account
2014/10/31 12:14:19 PM	Orange Peels		10.00		10/20/2014	Recorder Account
2014/10/31 12:14:29 PM	Cheese Pack		11.00		10/20/2014	Recorder Account

Figure 2.1: WordPress Database Management Portal

The screenshot shows the 'Edit Garbology' form. The fields are as follows:

- Material:** Soda
- Brand:** Mountain Dew
- Cost:** 0.00
- Count:** 1
- Fluid Ounces:** 20
- Catalog Number:** 4.00
- Solid Ounces:** 0
- Total Weight:** 0
- Total Weight in Grams:** (empty field)
- Type:** (empty field)
- Waste Grams:** Waste in Grams
- Date Recorded:** 10/20/2014
- Recorder:** Recorder Account

Additional features include a 'Manage' sidebar with creation and modification timestamps, and a 'Navigate' sidebar with 'Previous Garbology' and 'Next Garbology' links.

Figure 2.2: WordPress Garbology Database Entry Fields

# *Elements of Sustainability*

Describe how this project advances the goals in the [2014 CSU Sustainability Policy](#) and campus sustainability priorities (max 1000 characters)

CLASS Name FYS 158: Archaeology of Sustainability. This course deployed in-class and field-based campus surveys with the intent of reviewing student perceptions of campus energy and waste-management issues. Said surveys were not deployed on anything but the class level, but the use of said surveys provided a backdrop for the modern material cultures or garbology projects undertaken by students in each given term. Students commented about the increased awareness that said surveys and the MMC garbology survey provided in the way of issues pertaining to energy consumption, waste management, and other patterns identified with human behavior and the campus environment.

Select all applicable policy Facilities Outcomes (FO's) to be covered by the proposed project/course redesign

- FO 1.1 - Reduce GHG emissions to 1990 levels by 2020
- FO 1.2 - Reduce GHG emissions to 80% below 1990 levels by 2040
- FO 1.3 - Promote use of alternative transportation and/or alternative fuels
- FO 2.1 - Increase on-site power generation
- FO 2.2 - Procure 33% of energy from renewable sources by 2020
- FO 3.1 - Operate CSU buildings/facilities in most energy efficient manner possible
- FO 3.2 - Identify energy efficiency improvement measures to greatest extent possible
- FO 3.3 - Cooperate with federal/state/local governments to accomplish energy conservation and utilities management objectives and inform/create awareness to campus community
- FO 3.5 - Monitor monthly energy and utilities use and provide necessary data to Chancellor's Office
- FO 3.6 - Develop and maintain a campuswide integrated strategic energy resource plan
- FO 4.1 - Reduce water use by 10% by 2016 and 20% by 2020. Use recycled/reclaim when possible
- FO 5.1 - Reduce per capita landfill waste by 50% by 2016
- FO 5.2 - Reduce hazardous waste to the extent possible
- FO 6.1 - Promote use of environmentally preferred vendors. Use recycled/reusable/refillable products
- FO 6.2 - Encourage procurement of products with reduced or recycled packaging. Participate in CalRecycle 'Buy Recycled' program
- FO 6.3 - Report on all recycled content product categories, and improve tracking/reporting procedures
- FO 7.1 - Purchase 20% 'sustainable' food by 2020 (local, organic, free trade). Follow Real Food Challenge (or equivalent) guidelines
- FO 7.2 - Create public awareness and training on sustainable food service operations for campus
- FO 8.1 - Design all building projects to consider energy efficiency and sustainability
- FO 8.3 - Design and build to meet LEED Silver certification. Strive for Gold or Platinum certification
- FO 9.1 - Operate and maintain an energy management system w/ centralized reporting and control
- FO 9.2 - Consolidate academic and non-academic programs to achieve highest building utilization