San José State University.
Environmental Studies Department

EnvS 137: Green Building Design, Spring 2015

Instructor:	Jessie Denver
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Office hours:	By appointment
Class days/time:	M, 3:00-5:45 PM
Classroom location:	Dudley Moorhead Hall 164

What is the use of a house if you haven't got a tolerable planet to put it on? - Henry David Thoreau, 1845

Course Description

Conventional building design has a substantial impact on energy, material resources and greenhouse gas emissions as well as adversely impacting occupant health, comfort and productivity. Exposure to toxic materials, poor indoor air quality, inefficient use of water and energy, and greenhouse gas emissions are all by products of our built environment, and symptoms of a larger problem. In the last century, humans have distanced ourselves from the natural world of which we are interconnected. As a result, we have degraded our life support system and jeopardized our own survival. Green building is a mechanism for humans to restore our connection to the planet and develop an interdisciplinary approach to design. This course provides an *overview* of green building design strategies; green building policy, and green building certifications (focus – LEED).

Student Learning Objectives.

Upon completion of this course, the student will be conversant on the subject of high- performance green building design and delivery systems, the USGBC LEED suite of building assessment standards.

Required Textbook

- All materials needed will be provided via CANVAS by Instructor.

Course Format

This course will combine presentations by faculty, students, and guest speakers. Assigned readings from Canvas posts, and online resources will follow each session. Small group work and presentations, case analyses, and problem solving exercises and field trips will be used when appropriate.

Classroom Protocol

Class attendance and participation are required and expected. Please arrive to class on time. **During class, you may not use cell phones, other electronic devices that enable you to text, tweet, Facebook, Instagram, IM or partake in any other social media outlet. You may use a laptop to take notes in class only and all email and social media functions must be turned off.**

The course will utilize the **CANVAS** e-campus service. The syllabus, course assignments (see Modules), and class presentations can all be accessed via CANVAS.

COURSE REQUIREMENTS AND ASSIGNMENTS: Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or other course related activities.

Late Assignments. Assignments are due on the due date.

- **A 40% deduction will be imposed for assignments up to 24 hours late.**
- **Assignments more than 24 hours late will receive no credit.**

Assignment Summary and Objectives

EXAMS, ASSIGNMENTS, AND EXTRA CREDIT	
The assignments are designed to help you learn the course materials, acquire the skills to analyze issues and assess your performance in fulfilling the course SLOs. The written/project assignments will help you develop skills to evaluate, analyze, and express solutions to green building design issues.	
Writing Assignment 1 (50 points): Location & Transportation and Sustainable Sites – See Modules for details.	
Writing Assignment 2 (100 points)	Green Building Case Study - 2000 word (See Modules for details). See Modules for details.
Writing Assignment 3 (100 points) + 25 points for Oral Presentation	Innovative Products and Technologies Report Each student will prepare a 1,000-word report on a recent green building product or technology. • You may not highlight solar PV. • You must have your product/technology approved by instructor. • The Case Study will be delivered to the instructor via Canvas. A 15-minute oral report will be given (with PPT). These will be in groups of 3 students. Each student in the group will highlight their chosen product/technology. See Modules for details.

Group Project (175 points) Green Building Project: LEED

- Description/Ecological Design/LEED Strategy: 50 points
- Detailed Strategy: 50 points
- Construction Operations and Building Commissioning: 25 points
- LEED Action Plan: 25 points
- Oral Presentation 25 points

Students will be divided into teams and each group, in consultation with the instructor, will be assigned or select a building project for application of high-performance green building approaches. This project must focus on LEED building assessment system.

The project assignment will have four sections (1) Project Description, Ecological Design, and LEED Initial Strategies; (2) Detailed Strategy (3) Construction Operations and Building Commissioning Plan; (4) LEED Action Plan
Note: Items (1) through (4) will be submitted together

(1) Project Description, Ecological Design and LEED Strategies: Based on an assessment of the conditions of the project, the teams will submit a thorough description of their approach to ecological design for the project and a proposed LEED strategy indicating possible points achievable, and points that are not achievable. You must include a LEED checklist for your project.

(2) Detailed Strategy: Each team will provide submittals that provide written evidence of their progress in greening the project. The intermediate submittals will cover the major components of the building assessment systems. Each submittal will include adequate supporting information in the form of graphics, cut sheets, tables, and other data that supports the submission. The submissions will be for: Minimum Project Requirements, Site, Energy, Water, Materials, Indoor Environmental Quality, Innovation and Design, and Regional Priority Credits. For points not being sought in LEED you are to explain the reason for not pursuing them.

(3) Construction Operations and Building Commissioning: Submit a report detailing erosion and

sediment control, construction and demolition waste management, indoor air quality management during construction, worker health and safety, subcontractor training, and reducing the ecological footprint of construction operations describing how to meet EA Prerequisite 1 (Fundamental Building Commissioning), EA Credit 3 Additional Commissioning. (4) LEED Action Plan: Submit a spreadsheet that shows for each credit you intend to pursue, who is responsible for submitting the documentation on the project workspace and what they must submit.
Additional Assignments, Quizzes and Class Participation (50 points): At the prerogative of the professor, you will be given writing assignments, quizzes and/or take home assignments.
Total Points 500
Bonus: Up to 10 points – Opportunities to be announced

Grading Scale

Grade	**Percentage**		
A plus	98-100%.		
A	93-97%.		
A minus	90-92%		
B plus	88-89%		
B	83-87%		
B minus	80-82%	D plus	68-69%
C plus	78-79%	D	66-67%
C	73-77%	D minus	65%
C minus	70-72%	F	Less than 65%

GBD ENVS 137 – Schedule
Spring 2015

Note: This schedule will likely be modified. You are responsible for making sure you are informed of schedule revisions, which will be posted in the MODULES section of CANVAS. Attend class regularly for updates.

Class	Topic
Week One 1/26	• Welcome / Intros • Overview: What is GBD • Buildings / Consumption and Climate Change • Benefits • Overview of USGBC and LEED Refer to Modules on Canvas for assignments
Week Two 2/2	• Be prepared to discuss Week 1 Modules • **The Green Building Process – Charettes** • **Regenerative Design / Biophilia/ Cradle to Cradle** Refer to Modules on Canvas for assignments • Living Building Challenge
Week Three 2/9	• Be prepared to discuss Week 2 Modules • **Living Building Challenge (Guest - Eric Corey Freed)** • **Green Building Policy** Refer to Modules on Canvas for assignments
Week Four 2/16	• Be prepared to discuss Week 3 Modules • GB Policy (continued) • **LEED Location & Transportation** - Location is the foundation for the sustainability of individual buildings or even entire communities. Refer to Modules on Canvas for assignments
Week Five 2/23	• **LEED Location & Transportation (continued)** • **LEED Sustainable Sites Concepts** - The site selection, design, and operation of a building can have significant and far-reaching impacts. • Group project introduced – LT & SS Refer to Modules on Canvas for assignments **Writing #1 Assigned – Due 3/11**

Week Six 3/2	• **LEED Sustainable Sites Concepts (continued)** • **Group project coordination time – LT & SS** Refer to Modules on Canvas for assignments
Week Seven 3/9	**Group Presentations – LT & SS** **Water Efficiency** • Describe the key concepts and goals of Water Efficiency • Describe strategies to achieve Water Efficiency goals • Identify water efficiency strategies in your own home, work, or community • Describe cost implications of WE / Discuss how to reduce the burden on the sewer systems Refer to Modules on Canvas for assignments **Writing #1 Due – 3/11** **Writing #2 - Assigned**
Week Eight 3/16	**Water Efficiency (continued)** Refer to Modules on Canvas for assignments
Week Nine 3/23	**Spring Recess – Take home midterm**
Week Ten 3/30	**Materials & Resources** • Describe the key concepts and goals of M&R • Describe strategies to achieve M&R • Identify criteria for a sustainable ongoing purchasing policy for a consumable product • Describe cost implications of M&R • Identify examples of green products and technology • Evaluate criteria for sustainable building materials Refer to Modules on Canvas for assignments **Assignment: Essay III** **Group Project Presentation: Products-Technology (Due April 13th)**
Week Eleven 4/6	• **M&R (continued)** • **Group Coordination time** Refer to Modules on Canvas for assignments
Week Twelve 4/13	• **M & R Group Presentations** • **Energy and Atmosphere** Energy and Atmosphere is the category in LEED with the most pre-requisites, the most credits, and the most impact on climate change. If there is any category within LEED that people around the world can agree is extraordinarily important, it's this one. • Energy demand, efficiency, supply, performance, RE Refer to Modules on Canvas for assignments **Writing 3 Due** **Final Group Project Assigned**

Week Thirteen 4/20	Earth Day Week (4/22) • **Energy and Atmosphere (continued)** Refer to Modules on Canvas for assignments Group presentation coordination time
Week Fourteen 4/27	Indoor Environmental Quality - Review Strategies Group presentation coordination time
Week Fifteen 5/4	Indoor Environmental Quality – (continued) Group presentation coordination time
Week Sixteen 5/11	**Final Group Projects** **Last Day of Instruction (W - 5/13 for all classes at SJSU)**
Week of 5/15-5/21	**Final Exam**