

San José State University
Environmental Studies Department
Solar Home Design ENVS 137, Spring 2017
#22922

Course and Contact Information

Instructor:	Benoit Delaveau, MS, CEM, BEAP
Office Location:	WSQ111B
Telephone:	(650) 288-6653
Email:	benoit.delaveau@gmail.com
Office Hours:	MoWe 1:00-2:30 PM (from 1/30 to 5/10) - ALWAYS email me.
Class Days/Time:	Fr 12:30PM - 3:15PM
Classroom:	Dudley Moorhead Hall 167

Faculty Web Page and MYSJSU Messaging

You are responsible for checking **daily** with the messaging system through MySJSU and Canvas. Course materials such as the syllabus, assignments, readings, and handouts are posted to canvas: <https://sjsu.instructure.com> . Log in with your SJSU One account info. For assistance see: <http://www.sjsu.edu/at/ec/support/>

Course Description

"The oldest task in human history: to live on a piece of land without spoiling it"
Aldo Leopold 1887-1948

In 1990 global population was 5.2 billion, we expect this number to grow to 10 B by 2100. While humanity must feed, power and host this growing population, the pressure on Earth ecosystems (climate change and resource depletion) is unsustainable. Over the past 20 years, the rise of the Green Building movement has been an attempt to reduce the environmental impact of the building industry.

ENVS137 aims to critically cover the history of this recent environmental movement from its roots (Ancient Chinese cities, Greece and Roman empire) to contemporary California mandatory building code (Cal Green) and the commercial green building certifications (LEED, Energy Star, Green Globes,...).

Course Goals

Upon successful completion of this course, students will be able to:

Describe the basic of "Green" building design: Main principles of building efficiency (orientation, insulation, material, reliance on external fossil energy...). What can we learned from earlier successful societies and cities.

Understand the role of building codes (International, Federal, California CalGreen) and local agencies responsible for it (cities/counties) - 1st assignment: How your own city has adopted or amended CalGreen for residential buildings?

Understand building environmental impacts and the assessment tools (LCA/LCC ISO 14000, check lists, role of professionals involved) - 2nd assignment: Chose a green project in your neighborhood and search for the public documents available, present in class.

Understand the main Green Building certifications and their credit categories: Sustainable sites choice/Energy efficiency - Carbon reduction/Hydrologic cycle - water efficiency/Material choice-product loop/IAQ. - 3rd assignment: Write an essay describing two main green building aspects of your chosen project.

Understand Green Building implementation and lifecycle (operations/maintenance/commissioning/decommissioning) and Green Building Economics - 4th assignment: interview one of the professional/user who was involved in your chosen project about implementation or building real world performance.

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

1. Assess official building permit application documents.
2. Assess and decode Green Building certification documents.
3. Apply ISO 14000 LCA/LCC principles to the building environment.
4. Navigate the mandatory and optional processes involved in green building design.

Required Texts/Readings

Sustainable Construction: Green Building Design and Delivery. 4th Edition By Charles J. Kibert, published by John Wiley & Sons, Inc. 2016.

Life Cycle Assessment. by Kathrina Simonen, Pocket Architecture Technical Design Series published by Routledge Taylor and Francis Group, 2014.

Both are available on Amazon.com (instant download available on Kindle/Kindle apps - hardcopy strongly recommended) as well as at SJSU bookstore

Library Liaison

Peggy Cabrera, peggy.cabrera@sjsu.edu

Course Requirements and Assignments

Dropping and Adding: Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, ... Refer to the current semester's Catalog Policies section at <http://info.sjsu.edu/static/catalog/policies.html>

Grading: Use the percentages below and your scores to monitor your grade. Real time grade will be available along the semester on Canvas.

Credit-hour statement: This three-unit course requires a minimum of 9 hours per week to complete class-related readings and assignments (roughly 2.5 hours in class and 6.5 hours outside class per week.) Careful time management will help you keep up with readings and assignments and enable you to succeed in all your classes. More details about student workload can be found in University Policy S12-3 at <http://www.sjsu.edu/senate/docs/S12-3.pdf>

Grading Information – Final Examination

20% Participation: It is expected that you will engage in class discussions as the class is formatted as a seminar. Share your thoughts about the readings when prompted in class, ask questions about lectures and readings, answer discussion prompts. Come to class having completed all of the **assigned readings**. Every article or chapter from the textbooks we read must be summarized or noted upon on your notebook. Hand written or printed reading notes are allowed to refer to during exams. Keeping good notes about the main points or views taken by authors of course readings is a good means to facilitate a sustained discussion, and be successful having a great participation grade. I will be collecting each class the reading notes this semester. Each reading note submission grade is approximately 1.5% of your final grade (participation points). *Current events in building science* Reply to the postings to the canvas website in the discussion section with a short description; and a link to an additional source related to the main article. Prepare a few remarks as we'll want to know more than just the headline. You are expected to reply to a few online discussions over the semester to get full online participation points.

20% Presentation. Each student will present 2 times in front of the class their main project and research (10 pts. each).

40% Exams: One mid-term (20 points) and one final exams(20 points)

Both the midterm and the final exams will be open notebook (your personal typed or handwritten notes). The exams will include short answers and essay questions. Your notebook should contain lecture notes and short annotations on the readings. If you take notes in the margins of your readings, make sure to transfer important ones to your notebook. You must bring a calculator to the examinations. You will not have access to any online electronic devices (other than a calculator). To study for the tests, you should review the readings, course lecture notes, homework, and learning objectives well in advance of the test date. The midterm will include material covered during the first portion of the class.

20% Your semester project/class assignment (5pts each)

Keep a project agenda with date/meeting/places. Take pictures when applicable. Polish and type your notes, turn the final document to your instructor for grading. See handout on formatting all your assignments.

Assign. #1 - How your own city has adopted or amended CalGreen for residential buildings?

Assign. #2 - Chose a green project in your neighborhood and search for the public documents available at your local building department, present in class.

Assign. #3 - Write an essay describing two main green building aspects of your chosen project.

Assign. #4 - Interview one of the professional/user who was involved in your chosen project about implementation or building real world performance. Turn a 2 pages formatted brochure describing your chosen project (template provided)

Determination of Grades

The course grade will be determined based on a total 100 possible points.

A+ 97–100

A 92–96

A- 89–91

B+ 86–88

B 81–85

B- 79–80

C+ 76–78 C 72–76

C- 69–71

D+ 67–68

D 64–66

D- 60–64

F < 60

NO Extra Credit available (given the work load to deal with in this class).

Penalty for late or missed work: -10% of the assignment's grade after 1st week of delay. -20% of the assignment's grade after 2nd week of delay. Not accepted after more than 14 days of delay (grade will be null)

Classroom Protocol

You are expected to come to every class on time. Class time starts with attendance check (not reflected in your final grade). However, classroom participation and results on the quizzes will be reflected in your final grade. No cell phone, emailing, or text messaging during class. If you need to make a phone call or send an email, or work on anything else that class material please excuse yourself from class or your instructor will ask you to leave the classroom.

University Policies

Academic integrity

Your commitment, as a student, to learning is evidenced by your enrollment at San Jose State University. The [University Academic Integrity Policy F15-7](#) requires you to be honest in all your academic course work.

Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. Visit the [Student Conduct and Ethical Development](#) website for more information.

See here for other campus wide policies <http://www.sjsu.edu/gup/syllabusinfo/>

Solar Home Design ENVS 137, Spring 2017

#22922

Course Schedule

This schedule is subject to change with fair notice. If necessary, the electronic schedule available on Canvas will be updated along the semester on a week to week basis.

1/27 - Lecture #1 - Why do we need to rethink buildings? Early learning in Building design.

Read: Let it Shine, Purlin Chap. 1, 2 and 3 (see files/readings on Canvas)

2/3 - Lecture #2 - Green Building principles and science foundations

Read: Randolph and Master, Chap. 6 Energy Efficiency for Buildings (see files/readings on Canvas).

Assign. #1 due - How your own city has adopted or amended CalGreen for residential buildings?

2/10 - Lecture #3 - Intro to International and CalGreen building codes.

Read: Randolph and Master, Chap. 8 From Whole Building to Whole Community Energy (see files/readings on Canvas).

2/17 - Lecture #3 - Assessing GB (part. 1) - LCA/LCC ISO 14000

Read: chapters 1-3 in Simonen, chapters 1-3 in Kiber

Assign. #2 due - Chose a green project in your neighborhood and search for the public documents available at your local building department, present in class. Students presentations

2/24 - Lecture #4 - Assessing GB (part. 2) - LEED v4.0 certification

Read chapters 4 and 5 in Kibert

Students presentations

3/3 - Lecture #5 - Assessing GB (part. 3) - Other certifications

Read: chapter 6 in Kibert and handouts

Students presentations

3/10 - lecture #6 - GB design (part. 1) - Site selection

Read: chapters 7 and 8 in Kibert

Mid-term in class

3/16 - lecture #7 - GB design (part. 2) - Energy + carbon footprint

Read: chapter 9 in Kibert #3

Assign. #3 due - Write an essay describing two main green building aspects of your chosen project.

Students presentations

3/17 - Lecture #8 - GB design (part. 3) - Water cycle

Read: chapter 10 in Kibert

Students presentations

3/24 & 3/31 Spring break + MLK

4/7 - Lecture #9 - GB design (part. 4) - Material and product selection

Read: chapters 4-5 in Simonen

Read: chapter 11 in Kibert

Students presentations

4/14 - Lecture #10 - GB design (part. 5) IAQ

Read: chapter 12 in Kibert

Assign. #4 due - interview one of the professional/user who was involved in your chosen project about implementation or building real world performance.

Students presentations

4/21 - Lecture #11 - GB implementation (part. 1) - LEED processes, building phase, commissioning

Read: chapter 13 in Kibert

Students presentations

4/28 - Lecture #12 - GB implementation (part. 2) - Economics

Read: chapter 14 in Kibert

Students presentations

5/5 - Lecture #13 - Green Building future

Read: chapters 6-7 in Simonen

Read: chapter 15 in Kibert

Students presentations

5/12 - Lecture #14 - Study session, you are done.

5/18 - Final Exam Thursday, May 18 12:15-14:30PM

<http://info.sjsu.edu/static/catalog/final-exam-schedule-spring.html>