

# California Polytechnic State University, San Luis Obispo

## Construction Management Department

### CM 317, Sustainability and the Built Environment, Fall 2020

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<b>Office Hours:</b>	Tuesday and Thursday 11-1, online or by appointment
<b>Class Days/Times:</b>	Online
<b>Classroom:</b>	N/A
<b>Prerequisite(s):</b>	Junior standing and completion of GE Area B.

### Course Description

Interdisciplinary analysis of sustainable strategies and technologies to enhance the built environment. A systems approach to green building science that includes sustainable site development, water use efficiency, renewable energy, improving material use, indoor environmental quality, and design innovation. Course may be offered in classroom-based or online format. 4 lectures. Fulfills GE Area F.

Prerequisite: Junior standing and completion of GE Area B

### Course Goals and Learning Outcomes

#### Course Goals:

Students will examine the techniques of sustainable and environmental issues related to the built environment. Goals and objectives achieved through analysis of particular sustainable and/or environmental issues.

#### Course Learning Outcomes (CLOs):

1. Examine various methodologies to which sustainability is being applied in the development of the built environment.
2. Describe different types of sustainable technologies used in the development of the built environment.
3. Understand how sustainability incorporates a long-term view for assessing best practices to solve social, economic, scientific, mathematical, artistic, and/or commercial problems.
4. To think critically about beneficial and detrimental impacts of energy, water and material use.
5. To understand and be able to articulate the considerations (which may include scientific, technical, economic, commercial, and social) that are necessary for making rational, ethical, and humane technological decisions in the design and construction of the built environment.

6. To provide an understanding how professionals and as citizens make informed, reasoned judgments about ethical and policy issues regarding the design and construction of the built environment.
7. Understand historical implications of the built environment, current sustainable perspectives and the use of innovation and design to improve the development of the built environment.
8. Gain an understanding of new and emerging technologies used to manage the development of the built environment.

## **Student and Program Learning Outcomes**

The American Council for Construction Education (ACCE) is the accrediting body for Cal Poly's construction management program. The ACCE requires achievement of 20 student learning outcomes (SLOs). The construction management program has identified 20 program learning outcomes (PLOs) that equal or exceed the ACCE SLOs and 5 additional idiosyncratic PLOs.

This course supports the following PLOs:

- PLO 1: Create written communications appropriate to the construction discipline.
- PLO 6: Analyze professional decisions based on ethical principles.
- PLO 8: Analyze methods, materials, and equipment used to construct projects.
- PLO 12: Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
- PLO 18: Understand the basic principles of sustainable construction.
- PLO 21: Understand the role construction managers play in enhancing the needs of society.
- PLO 25: Understand the benefits of respecting the unique and diverse backgrounds individuals bring to a construction team.

## **Topical Outline, Outcomes, and Method of Assessment**

This course has embedded assessment instruments for the PLO(s) listed below:

- PLO 18: Understand the basic principles of sustainable construction.

An overview of content, course learning outcomes, program learning outcomes, instructional activities, and assessment measures, is listed in the table below.

Unit	Topical Outline	CLOs	PLOs	Instructional Activities	Method of Assessment
1	<b>Module 1: Building Science</b>	1,2,3,4,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21	Reading, Videos, Discussion, Assignment	Discussions with two peer reviews and assessed to a rubric.  Written assignments assessed by a rubric  Final assessment (multiple choice)
2	<b>Module 2: Introduction to Green Buildings and Communities</b>	1,2,3,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	Discussions with two peer reviews and assessed to a rubric.  Written assignments assessed by a rubric  Final assessment (multiple choice)

Unit	Topical Outline	CLOs	PLOs	Instructional Activities	Method of Assessment
3	<b>Module 3: Sustainable Thinking and Putting Sustainable Thinking to Work</b>	1,2,3,4,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	Discussions with two peer reviews and assessed to a rubric.  Written assignments assessed by a rubric  Final assessment (multiple choice)
4	<b>Module 4: U.S. Green Building Council and its Programs</b>	1,2,3,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	Discussions with two peer reviews and assessed to a rubric.  Written assignments assessed by a rubric  Final assessment (multiple choice)

Unit	Topical Outline	CLOs	PLOs	Instructional Activities	Method of Assessment
5	<b>Module 5: Sustainable Sites</b>	1,2,3,4,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	Discussions with two peer reviews and assessed to a rubric.  Written assignments assessed by a rubric  Final assessment (multiple choice)
6	<b>Module 6: Water Efficiency</b>	1,2,3,4,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	Discussions with two peer reviews and assessed to a rubric.  Written assignments assessed by a rubric  Final assessment (multiple choice)

Unit	Topical Outline	CLOs	PLOs	Instructional Activities	Method of Assessment
7	<b>Module 7: Energy and Atmosphere</b>	1,2,3,4,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	Discussions with two peer reviews and assessed to a rubric.  Written assignments assessed by a rubric  Final assessment (multiple choice)
8	<b>Module 8: Material and Resources</b>		PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	
9	<b>Module 9: Indoor Environmental Quality</b>	1,2,3,4,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	

Unit	Topical Outline	CLOs	PLOs	Instructional Activities	Method of Assessment
10	<b>Module 10: Innovation in Design and Operations</b>	1,2,3,4,5,6,7,8	PLO 1, PLO 8, PLO 12, PLO 18, PLO 20, PLO 21, PLO 25	Reading, Videos, Discussion, Assignment	

## Required Texts/Reading

### Textbook

*Green Associate Study Guide w/ Green Building & LEED Core Concepts Guide. Upper Saddle River, NJ: Prentice Hall. (ISBN 9781269312585). Available online. Students have found a pdf of the book by using the following key words in an internet search: "Green Associate Study Guide w/ Green Building pdf" and "LEED Core Concepts Guide pdf"*

*Lesson 03 – Building for Performance, Course Builder for Residential Construction Methods and Materials, Kelting (available at the Cal Poly Library or at URL: <http://www.cengagebrain.com>). Hard copies of this book are not available. Please only purchase Lesson 03 (not all 30 lessons) for approximately \$8. [quired or recommended textbooks here.](#)*

### Other Readings

Additional Readings are posted on Canvas

### Other Equipment/Material Requirements

Computer and WiFi

### Classroom Protocol

As a student, you are responsible to:

#### Email

- The instructor may email the students or post to the Course Announcements Forum with updates on the course. Students are required to read their email and check the Course Announcements Forum within every day (24hrs). Confirm that the email from Cal Poly is forwarded to their desired email account [http://servicedesk.calpoly.edu/my\\_cp\\_support/index.html#23](http://servicedesk.calpoly.edu/my_cp_support/index.html#23).
- The instructor will not be responding to general class questions via email. All learning communication must be through the Courses Question and Answer Forum.
- Personal or private questions/issues can be emailed to the instructor.

- The instructor will respond to emails within 48 hours or less. Special timelines or technical issues that may prevent the instructor from returning emails will be posted in the course Announcements.

#### Instructor Communication/Feedback

- Students are required to use the course Discussion Forums to communicate to their classmates and instructor.
- Class Questions, Assignment Discussion Forum, Peer Review/Feedback and Water Cooler Forums should be reviewed by the instructor and students within 48 hours or less.
- Students should post their Assigned Discussion Forum Threads by Tuesday 11:59pm PST, and respond to at least 2 other classmate's threads by Thursday 11:59 PST. Unless specified differently due to a Holiday.
- The instructor feedback / response can take up to 48 hours or less.
- Peer Review/Feedback must be supportive, professionally constructive and mindful of each other's feelings.
- Classmates will mentor each other in the overall learning process and provide support and encouragement throughout the course.
- All users must follow the guidelines with in the "Netiquette" document listed in the Course Manual.
- Students who abuse the Discussion Forum tools will be disabled from using them until the student discusses their behavior/issue with the instructor via the phone or email.

#### Participation

- Students are required to participate in the course via the Discussion Forum, sharing and Assignments.
- Students will need to spend a minimum of 12 hours a week on the course content, readings, Discussion Forums, and assignments/projects.
- Students are required to be self-motivated to learn the content, read the materials, and participate in the community Discussion Forums.
- Active participation within an online environment can strengthen learning to provide stronger comprehension and retention of material. Because the students are now more involved in their learning by writing, discussing, sharing, and debating, the instructor must now facilitate the students' learning.

Add any additional information/responsibilities here in a paragraph (or delete this line).

### Assignments and Exams

The following assignments and their associated point values are subject to change by the instructor as needed.

Description	Points
Discussions	40%
Assignments	40%
Final Exam	20%



<b>Total Points Possible</b>	
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## Late/Missed Work and Make-Up Policy

Insert your late/missed work and make-up policy here.

## Grading Policy

Insert your grading policy here.

Listed below is the grading scale for this course.

Letter Grade	Percentage	Performance	Definition
A	93 – 100%	Excellent Work	Superior Attainment of Course Learning Outcomes
A-	90 – 92%	Mostly Excellent Work	
B+	87 – 89%	Very Good Work	Good Attainment of Course Learning Outcomes
B	83 – 86%	Good Work	
B-	80 – 82%	Mostly Good Work	
C+	77 – 79%	Very Acceptable Work	Acceptable Attainment of Course Learning Outcomes
C	73 – 76%	Acceptable Work	
C-	70 – 72%	Mostly Acceptable Work	
D+	67 – 69%	Mostly Poor Work	Poor Attainment of Course Learning Outcomes
D	63 – 66%	Poor Work	
D-	60 – 62%	Very Poor Work	
F	0 – 59%	Failing Work	Non-Attainment of Course Learning Outcomes

## University Policies

### Participation and Attendance

Insert student participation and attendance expectations here.

Students are responsible for knowing the University policy regarding class attendance. See this link on [Class Attendance Policy](#) provided on the university website.

### Add/Drop Policy

Students are responsible for knowing the University policies, procedures, and schedule for dropping or adding classes. See this link on [Add/Drop Policy](#) provided on the university website.

### Academic Integrity

Students are responsible for knowing the [Academic Honesty Policy](#).

## **Students with Disabilities**

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Disability Resource Center, Building 124, Room 119, at (805) 756-1395, as early as possible in the term, as accommodations may take several weeks to arrange. If you are a student with a disability, please consider discussing your needs and possible accommodations with me as soon as possible, and visit the [DRC Website](#) for additional information.

## **SensusAccess**

SensusAccess is a self-service, alternate media solution made available by Kennedy Library to automatically convert files into a range of alternate media including audio books (MP3 and DAISY), e-books (EPUB, EPUB3 and Mobi) and digital Braille. The service can also be used to convert inaccessible files such as image-only PDF files, JPG pictures and Microsoft PowerPoint presentations into more accessible and less tricky formats. This service is available at no charge for all Cal Poly students, faculty, staff and alumni. For additional information, visit [SensusAccess at the Kennedy Library](#).

## **Diversity and Inclusion**

Cal Poly considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. Cal Poly expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. For more information on resources related to diversity and inclusion, please visit the Office of University Diversity & Inclusivity website at [diversity.calpoly.edu](http://diversity.calpoly.edu).

## **Technical Support and Contact Information**

Support is available for troubleshooting and access issues for PolyLearn. Please visit the [PolyLearn Student Support Web Site](#) for further information.

## **Campus Resources to Support Student Learning**

Cal Poly offers programs and resources that are available to assist students during your academic studies, such as the [Cal Poly Student Academic Services Web Site](#).