

Sustainable Environmental Design

Bachelor of Arts (BA)

The Sustainable Environmental Design major recognizes that the emergent, multidisciplinary field of sustainable design is growing rapidly. As the world population urbanizes, the planning and design of resilient, resource-efficient, healthy and socially just cities and metropolitan regions is profoundly important. The College of Environmental Design, with its long-standing expertise in sustainable urbanism and design, is an ideal setting for an undergraduate major in sustainable environmental design, with a focus on the built environment.

The major offers students a critical understanding of the sustainability challenges facing urban regions in California and around the globe and equips them with the technical, analytic, and design tools key to devising creative solutions. Graduates have many career paths and fields of graduate study open to them. Students who complete this major will:

1. Understand the application of physical, biological, and social science in the design of sustainable cities and metropolitan regions.
2. Understand sustainable urban technologies and design strategies.
3. Comprehend issues of equity and social justice as they relate to sustainable cities and regions.
4. Evaluate and monitor the present state and future potential of built environments in terms of sustainability.
5. Comprehend the implications of policy and institutions and their potential to shape future sustainable cities and regions.

Program Overview

Features of the major include the following:

- The gateway course, ENV DES 110 is taken by all incoming SED first years and transfer students. The course is an opportunity to meet your cohort and explores varying interpretations of sustainability through the fields of design, economics, law, and advocacy. Guest speakers will walk students through various career and life paths in the field of sustainability, and demonstrate how the field is being constructed in real time. The course will also introduce students to various concentrations, dual-degrees and certificate programs available to SED majors.
- LD ARCH 12, Environmental Science for Sustainable Development, introduces students to the scientific basis of sustainability as explored through the study of energy, water, food, natural resources and the built environment, with a focus on the application of scientific insights to sustainable development strategies. The course emphasizes hands-on learning through field-based exercises such as measurement of atmospheric particulate matter, micro-climates, channel form, aquatic insects and water quality, and direct observations of green infrastructure, green building methods, and urban agriculture.
- A Critical Approaches course, ENV DES 102, Climate Changes and City Planning: Adaptation and Resilience. The course challenges students to think critically about the idea of sustainability, develop critiques of current sustainable urbanism/design practice, and envision the institutional and behavioral changes required for a more sustainable future.

- A Methods/Technology course, LD ARCH C188 /GEOG C188, Geographic Information Systems (GIS). GIS has become a basic tool for a wide range of analytic tasks across all environmental design fields. The course addresses both GIS theory and applications, offering a dynamic analytical framework for gathering, integrating, interpreting, and manipulating temporal and spatial data.
- A set of upper division courses on energy and environment, deep green design, the nature of cities, planning for sustainability, ecological analysis, and sustainable cities and landscapes.
- A capstone workshop course, ENV DES 106, Sustainable Environmental Design Workshop. Linking sustainability science and technology with urban form and social dynamics, the workshop requires independent and collaborative research with an external client organization to offer innovative strategies for sustainable environmental design.

Admission to the Major

Students must declare one of the CED majors at the time of application to the college; however, current UC Berkeley students may apply to change into CED. Transfer applicants must complete two years worth of lower division coursework to be considered for admission to CED. For information regarding admission to the major for freshmen, transfer students, and current students who wish to change majors or colleges, please see the College of Environmental Design (CED) page (<http://guide.berkeley.edu/undergraduate/colleges-schools/environmental-design/#choosingamajortext>) in this Guide or the CED website (<http://ced.berkeley.edu/admissions/undergraduate/>).

Sustainable Design Minor Program

The Department of Architecture and the Department of Landscape Architecture and Environmental Planning jointly offer a Sustainable Design Minor program (<http://guide.berkeley.edu/undergraduate/degree-programs/sustainable-design/>). This minor program is open to undergraduate students at UC Berkeley except those in the Sustainable Environmental Design Major.

In addition to the University, campus, and college requirements, listed on the College Requirements tab, students must fulfill the below requirements specific to their major program.

The Sustainable Environmental Design major requirements differ by students' admit year to UC Berkeley. The major requirements listed below are the most recent. In the Berkeley Academic Guide Archive (<http://guide.berkeley.edu/archive/>), refer to the year you were admitted to UC Berkeley for your major requirements.

General Guidelines

1. Courses taken to fulfill lower division major requirements may also be used to fulfill Seven-Course Breadth.
2. All lower division courses taken in fulfillment of major requirements must be completed with a grade of C- or better. A minimum grade point average (GPA) of 2.0 must be maintained in upper and lower division courses used to fulfill the major requirements.
3. A minimum overall GPA of 2.0 for all courses taken at UC Berkeley is required for graduation.
4. Courses used to fulfill an upper division major requirement may not simultaneously fulfill a breadth requirement.

5. Up to two upper division courses taken at another institution, including an approved study abroad program, may be applied to the major requirements below (if transferable and approved in advance).

For information regarding residency requirements and unit requirements, please see the College Requirements tab.

Summary of Major Requirements

Lower Division Requirements: Six Courses

Upper Division Sustainable Environmental Design Core: Nine Courses

Recommended Sustainable Environmental Design Area Concentrations

Lower Division Major Requirements: Freshman and Sophomore Year

ENV DES 110	Designing Sustainability	3
LD ARCH 12	Environmental Science for Sustainable Development	4
MATH 16A	Analytic Geometry and Calculus	3-4
or MATH 1A	Calculus	
STAT 2	Introduction to Statistics (or higher)	4
or STAT C8	Foundations of Data Science	
PHYSICS 7A	Physics for Scientists and Engineers	4
or PHYSICS 8A	Introductory Physics	
ENVECON C1/ ECON C3	Introduction to Environmental Economics and Policy	4

(ECON 1 or 2: permission needed from SED Advisor)

Upper Division Sustainable Environmental Design Core (Courses Inside CED)

ARCH 140	Energy and Environment	4
ARCH 142	Sustainability Colloquium	2
or ARCH 242	Sustainability Colloquium	
CY PLAN 119	Planning for Sustainability	3-4
or CY PLAN 140	Urban Design: City-Building and Place-Making	
ENV DES 100	The City: Theories and Methods in Urban Studies	4
ENV DES 102	Climate Change and City Planning: Adaptation and Resilience	3
ENV DES 104	Design Frameworks	3
ENV DES 106	Sustainable Environmental Design Workshop	4
LD ARCH 140	Social and Psychological Factors in Open Space Design	3
or LD ARCH 133	Sustainable Landscapes and Cities	
LD ARCH/GEOG C188	Geographic Information Science	4

Recommended Sustainable Environmental Design Area Concentrations

The intent of recommended area courses is to provide students with opportunities to deepen their knowledge about specific issues in sustainability. Each of the area courses focuses on an essential aspect of sustainability with the premise that urban sustainability is a multi-dimensional problem and sustainable environments emerge from the

intersection of technology, design, economics, policy, and societal change.

Economics, Business and Policy

CY PLAN 113A	Economic Analysis for Planning	3
CY PLAN 113B	Community and Economic Development	4
CY PLAN 114	Introduction to Urban and Regional Transportation	3
CY PLAN 115	Urbanization in Developing Countries	4
CY PLAN 120	Community Planning and Public Policy for Disability	3
ECON C125	Environmental Economics	4
ENE,RES 190	Seminar in Energy and Resources Issues	3
ENVECON 100	Intermediate Microeconomics with Applications to Sustainability	4
ENVECON 147	Regulation of Energy and the Environment	4
ENVECON 162	Economics of Water Resources	3
ENVECON C176	Climate Change Economics	4
ESPM 60	Environmental Policy, Administration, and Law	4
ESPM 168	Political Ecology	4
ESPM 169	International Environmental Politics	4
UGBA 107	The Social, Political, and Ethical Environment of Business	3
UGBA 180	Introduction to Real Estate and Urban Land Economics	3

Society, Culture and Ethics

ANTHRO 137	Energy, Culture and Social Organization	4
ARCH 110AC	The Social and Cultural Processes in Architecture & Urban Design	3
CY PLAN 117AC	Urban & Community Health	3
CY PLAN 118AC	The Urban Community	4
ENE,RES C100	Energy and Society	4
ENE,RES 101	Ecology and Society	3
ESPM 151	Society, Environment, and Culture	4
ESPM 161	Environmental Philosophy and Ethics	4
ESPM 163AC	Environmental Justice: Race, Class, Equity, and the Environment	4
ESPM C167/ PB HLTH C160	Environmental Health and Development	4
ESPM 168	Political Ecology	4
LD ARCH 140	Social and Psychological Factors in Open Space Design	3
LD ARCH 170	History and Literature of Landscape Architecture	3
LD ARCH C171	The American Designed Landscape Since 1850	3
NUSCTX 104	Food, Culture, and the Environment	2
NUSCTX W104	Food, Culture, and the Environment AC	3
SOCIOL 121	Innovation and Entrepreneurship: Social and Cultural Context	4
SOCIOL 136	Urban Sociology	4
SOCIOL 137AC	Environmental Justice: Race, Class, Equity, and the Environment	4

Environmental Planning and Management

ENE,RES 102	Quantitative Aspects of Global Environmental Problems	4
ESPM 50AC	Introduction to Culture and Natural Resource Management	4

ESPM 102C	Resource Management	4
ESPM 102D	Climate and Energy Policy	4
ESPM 117	Urban Garden Ecosystems	4
LD ARCH 122	Hydrology for Planners	4
LD ARCH 289	Applied Remote Sensing (instructor consent required)	3

Design and Technology

Note: LD ARCH 140 course from the Society, Culture and Ethics AREA list above, can also be used for Design and Technology AREA list

ARCH 11A	Introduction to Visual Representation and Drawing (Formerly ENV DES 11A)	4
ARCH 11B	Introduction to Design (Formerly ENV DES 11B)	5
ARCH 124A	Introduction to Digital Design Methods	2
ARCH 130	Introduction to Architectural Design Theory and Criticism	4
ARCH 149/249	Special Topics in Energy and Environment	4
ARCH 160	Introduction to Construction	4
ART 100	Collaborative Innovation	4
CY PLAN 110	Introduction to City Planning	4
CY PLAN 140	Urban Design: City-Building and Place-Making	3
DES INV 190	Special Topics in Design Innovation	1-4
ENV DES 104	Design Frameworks	3
IND ENG 186	Course Not Available	3
LD ARCH 1	Drawing a Green Future: Fundamentals of Visual Representation and Creativity	4
LD ARCH 111	Plants in Design	3

For College Requirements, please refer to the College of Environmental Design (<http://guide.berkeley.edu/undergraduate/colleges-schools/environmental-design/#collegerequirementstext>).

Each student's plan will vary depending on interests. Students should see their adviser if they are interested in applying for graduate school, studying abroad, attending summer school, or pursuing a minor or second major.

For more detailed information regarding the courses listed below (e.g., elective information or GPA requirements), please see the Major Requirements tab.

		Freshman	
		Fall Units	Spring Units
ENV DES 1		3 ENV DES 5	4
ENV DES 110		3 Reading & Composition A	4-6
LD ARCH 12 (Breadth #1: BIO SCI)		4 Breadth #2	3
MATH 16A or 1A		3-4 University Elective, if needed	2-4
		13-14	13-17
		Sophomore	
		Fall Units	Spring Units
ECON C3 (Breadth #3: SOC-BHV SCI)		4 STAT 2	4
Reading & Composition B		4 ENV DES 104	3
Breadth #4		3-4 PHYSICS 8A (Breadth #6: PHYS SCI)	4

		3-4 Breadth #7	
		14-16	14-15
		Junior	
		Fall Units	Spring Units
ARCH 142		2 ARCH 140	4
LD ARCH C188		4 LD ARCH 130 or 140	4
CY PLAN 119 or 140		3-4 Recommended SED Area Concentration (ENV DES 104 for transfer students)	2-4
ENV DES 110 (transfer students)		3-4 CED Upper Div Non-Major #1	2-4
		12-14	12-16
		Senior	
		Fall Units	Spring Units
ENV DES 102		3 ENV DES 100	4
CED Upper Div Non-Major #2		3-4 ENV DES 106	4
CED Upper Div Non-Major #3		3-4 Recommended SED Area Concentration (or elective)	3-4
Recommended SED Area Concentration		3 University Elective, if needed	1-3
		12-14	12-15

Total Units: 102-121

Students must complete 120 units to graduate.

Learning Goals of the Major

1. Understand the application of physical, biological, and social science in the design of sustainable cities and metropolitan regions
2. Understand sustainable urban technologies and design strategies
3. Comprehend issues of equity and social justice as they relate to sustainable cities and regions
4. Evaluate and monitor the present state and future potential of built environments in terms of sustainability
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Major Maps help undergraduate students discover academic, co-curricular, and discovery opportunities at UC Berkeley based on intended major or field of interest. Developed by the Division of Undergraduate Education in collaboration with academic departments, these experience maps will help you:

- **Explore** your major and gain a better understanding of your field of study
- **Connect** with people and programs that inspire and sustain your creativity, drive, curiosity and success
- **Discover** opportunities for independent inquiry, enterprise, and creative expression
- **Engage** locally and globally to broaden your perspectives and change the world
- **Reflect** on your academic career and prepare for life after Berkeley

Use the major map below as a guide to planning your undergraduate journey and designing your own unique Berkeley experience.

View the Sustainable Environmental Design Major Map PDF. (https://ue.berkeley.edu/sites/default/files/sustainable_environmental_design.pdf)

The CED Office of Undergraduate Advising provides a wide array of programmatic and individual advising services to prospective and current students as well as to students in other colleges who are pursuing CED minors or taking CED courses. The professional advising team assists students with a range of issues including course selection, academic decision-making, achieving personal and academic goals, and maximizing the Berkeley experience.

Advising Staff

Architecture Major Advisor: Mel Barbers
250 Bauer Wurster Hall
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Landscape Architecture Major Advisor: Kristian Dawson
250 Bauer Wurster Hall
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Sustainable Environmental Design Major Advisor: Heather Grothjan
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Urban Studies Major Advisor: Kristian Dawson
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College Evaluator: Heather Grothjan
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Undergraduate Advising Director: Omar Ramirez
250 Bauer Wurster Hall
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Associate Dean for Undergraduate Studies: Kyle Steinfeld
345 Bauer Wurster Hall
ksteinf@berkeley.edu

Advising Office

Fall/spring: Monday through Friday, 10 to noon (office opens at 9 a.m.) & 1 to 4 p.m.

Summer: Monday through Friday, 10 to noon & 1 to 3 p.m.

Address

Office of Undergraduate Advising
College of Environmental Design
250 Bauer Wurster Hall #1800
University of California
Berkeley, CA 94720-1800
cedadvising@berkeley.edu

CED Career Services

The CED Career Services Center (CSC) offers personalized career counseling, a yearly CED Career Fair, and a wide variety of professional development workshops on topics such as licensure, internships, and applying for graduate school. To schedule an appointment with the

Career Counselor or for more information on CED CSC, please click here (<http://ced.berkeley.edu/ced/students/career/>).

Office of Undergraduate Advising (<http://ced.berkeley.edu/ced/students/undergraduate-advising/>)

- [Newly-Admitted Students](https://ced.berkeley.edu/new-admit/) (<https://ced.berkeley.edu/new-admit/>)
- [Current Students](http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students/) (<http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students/>)
- [Graduation and Commencement](http://ced.berkeley.edu/ced/students/undergraduate-advising/graduation-commencement/) (<http://ced.berkeley.edu/ced/students/undergraduate-advising/graduation-commencement/>)
- [Services and Contract](http://ced.berkeley.edu/ced/students/undergraduate-advising/services-contract/) (<http://ced.berkeley.edu/ced/students/undergraduate-advising/services-contract/>)
- [Articulation](http://ced.berkeley.edu/ced/students/undergraduate-advising/articulation/) (<http://ced.berkeley.edu/ced/students/undergraduate-advising/articulation/>)
- [Policies and Resources](http://ced.berkeley.edu/ced/students/undergraduate-advising/policies-resources/) (<http://ced.berkeley.edu/ced/students/undergraduate-advising/policies-resources/>)
- [Forms and Documents](http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/) (<http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/>)

Mission

The College of Environmental Design (CED) Office of Undergraduate Advising:

- **Supports** students holistically as they earn their degree,
- **Advocates** for just and equitable policies and practices,
- **Connects** current and prospective students with resources and opportunities,
- **Fosters** a sense of belonging and community.

Advising Values

The CED Office of Undergraduate Advising aspires to the following core values:

Student-Centered

We provide support services centered on student self-actualization. We aim to hold a welcoming space in which students are encouraged to explore their minds and their hearts, do their best work, realize their talents and passions, and achieve their goals. We put the student voice and experience first.

Justice & Equity

We actively seek to eradicate all forms of individual and institutionalized discrimination and oppression. We aim to provide students with an equitable experience in complete appreciation of their identities, economic status, and immigration status.

Health & Well-Being

We strive to build and sustain a culture in which our community can thrive in all aspects of life: intellectual, emotional, social, physical, occupational, spiritual and environmental.

Courage & Vulnerability

By learning from our own experiences, educating ourselves on developments in the field, collaborating with our communities, and taking strategic risks, we aim to improve our advising services and the student

experience. We are committed to continuous self-reflection, growth, and development.

Student Groups and Organizations

The college provides opportunities for students to be involved in student chapters of professional organizations such as the American Institute of Architects (AIA), the American Society of Landscape Architects (ASLA) as well as other student groups like the Chican@/Latin@ Architecture Student Association (CASA), Global Architecture Brigades, and more. For information regarding student groups, please see the Getting Involved page of the CED website (<http://ced.berkeley.edu/ced/students/undergraduate-advising/getting-involved/#orgs>).

Study Abroad

The College of Environmental Design (CED) encourages all undergraduates in the college to study abroad. Whether students are interested in fulfilling general education requirements, taking courses related to their major/career, or simply living and studying in a country that is of interest to them, the department will work with students to make it happen. For information about study abroad programs, please see the Berkeley Study Abroad website (<http://studyabroad.berkeley.edu/>).

CED Career Services

The CED Career Services Center (CSC) offers personalized career counseling, a yearly CED Career Fair, and a wide variety of professional development workshops on topics such as licensure, internships, and applying for graduate school. For further information, please see the CED Career Services website (<http://ced.berkeley.edu/ced/students/career/>).

Prizes and Awards

CED offers a number of annual prizes, awards, scholarships, fellowships, and grants to its currently enrolled students. Some of these prizes and awards are college-wide and some are geared toward students in specific majors. For general information regarding CED prizes and awards, including application instructions and a deadline calendar, please click here (<http://ced.berkeley.edu/ced/students/prizes/>).

CED Events and Exhibits Calendar

CED and Wurster Hall are home to a variety of events, lectures, and exhibitions that welcome professors, professionals, and friends to the college to discuss and celebrate the community and professions. Through events and media, the College of Environmental Design is constantly creating ways to keep the college connected and up-to-date. To view this calendar, please click here (<http://ced.berkeley.edu/events-media/events/>).

CED on Facebook (<https://www.facebook.com/groups/59611725522/>)

CED Lecture Series

The Departments of Architecture, City and Regional Planning, and Landscape Architecture and Environmental Planning each sponsor lecture series, which offers students the opportunity to hear internationally-acclaimed speakers. These speakers often also participate in classes and seminars as part of their visit to campus. For a schedule of speakers and events in these lecture series, please see the CED website (<http://ced.berkeley.edu/events-media/lecture-series/>).

Research Opportunities, Internships, Public Service, and Volunteer Opportunities

Check out the CED Office of Undergraduate Advising website (<http://ced.berkeley.edu/ced/students/undergraduate-advising/>) for additional opportunities.