Sustainable Environmental Design

Bachelor of Arts (BA)

The Sustainable Environmental Design major recognizes that the emergent, multidisciplinary field of sustainability science 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, 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, Critical Debates in Sustainable Urbanism. 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 series of highly recommended *area concentrations* allowing students to specialize in a variety of aspects of sustainability such as economics, business, and policy, society, culture, and ethics, resources and environmental management, or design and technology.
- 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/archive/2018-19/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/archive/2018-19/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.

General Guidelines

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

Recommended Sustainable Environmental Design Area Concentrations: Four Courses

Lower Division Major Requirements: Freshman and Sophomore Year

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	
Select one of the following:		4
ECON 1	Introduction to Economics [4]	
ECON 2	Introduction to Economics--Lecture Format [4]	
ENVECON C1/ECON C3	Introduction to Environmental Economics and Policy [4]	

Upper Division Sustainable Environmental Design Core (Courses Inside CED)

ARCH 140	Energy and Environment	4
ARCH 242	Sustainability Colloquium	2
or ARCH 142	Sustainability Colloquium	
CY PLAN 119	Planning for Sustainability	3
ENV DES 100	The City: Theories and Methods in Urban Studies	4
ENV DES 102	Critical Debates in Sustainable Urbanism	3
ENV DES 106	Sustainable Environmental Design Workshop	4
LD ARCH 110	Ecological Analysis (3 units)	4
or LD ARCH 130	Sustainable Landscapes and Cities	
LD ARCH/GEOG C188	Geographic Information Systems	4

Recommended Sustainable Environmental Design Area Concentrations (4 courses)

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	3
CY PLAN 115	Urbanization in Developing Countries	4
ENVECON 100	Microeconomic Theory with Application to Natural Resources	4
ENVECON C151	Economic Development	4
ENVECON/IAS C175	The Economics of Climate Change	4
ENE,RES 190	Seminar in Energy and Resources Issues	3
ESPM 60	Environmental Policy, Administration, and Law	4
ESPM 166	Natural Resource Policy and Indigenous Peoples	4
ESPM 168	Political Ecology	4
ESPM 169	International Environmental Politics	4
ESPM/EDUC C193A	Environmental Education	3
PUB POL 182	Environment and Technology from the Policy and Business Perspective	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	4
ARCH 133	Architectures of Globalization: Contested Spaces of Global Culture	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

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
INTEGBI 152	Environmental Toxicology	4
LD ARCH 122	Hydrology for Planners	4
LD ARCH 289	Applied Remote Sensing (instructor consent required)	3

Design and Technology

ARCH 11A	Introduction to Visual Representation and Drawing (Formerly ENV DES 11A)	4
ARCH 11B	Introduction to Design (Formerly ENV DES 11B)	5
ARCH 105	Deep Green Design (Formerly ENV DES 105)	4
ARCH 122	Principles of Computer Aided Architectural Design	4
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
CY PLAN/ARCH 111	Course Not Available	3
CY PLAN 114	Introduction to Urban and Regional Transportation	3

CY PLAN 140	Urban Design: City-Building and Place-Making	3
ENE,RES 175	Water and Development	4
ENV DES 104	Design Frameworks	3
GEOG 125	The American City	4
LD ARCH 1	Drawing a Green Future: Fundamentals of Visual Representation and Creativity	4

For College Requirements, please refer to the College of Environmental Design (http://guide.berkeley.edu/archive/2018-19/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	Reading & Composition B	4
Reading & Composition A		4-6	PHYSICS 8A (Fills Breadth #2, PS)	4
MATH 16A or 1A		3-4	ENV DES 4A, 4B, or 4C (2 of 3 required for graduation)	3
LD ARCH 12 (Fills Breadth #1, BS)		4	Breadth #3	3-4
		14-17		**14-15**
				Sophomore
	Fall	**Units**	**Spring**	**Units**
STAT 2		4	ECON 1 (Fills Breadth #6, SBS)	4
ENV DES 4A, 4B, or 4C (2 of 3 required to graduate)		3	ENV DES 4A, 4B, or 4C (2 of 3 required to graduate)	3
Breadth #4		3-4	Breadth #7	3-4
Breadth #5		3-4	Elective, if needed to reach 12 units	2
		13-15		**12-13**
				Junior
	Fall	**Units**	**Spring**	**Units**
ENV DES 102		3	ARCH 140	4
LD ARCH 110 (or LD ARCH 130)		3	LD ARCH 130 (or LD ARCH 110)	4
CY PLAN 119		3	Recommended SED Area Concentration #2	2-4
Recommended SED Area Concentration #1		2-4	CED Upper Div Non-Major #2	2-4
CED Upper Div Non-Major #1		2-4		
		13-17		**12-16**
				Senior
	Fall	**Units**	**Spring**	**Units**
ARCH 142 or 242		2	ENV DES 100	4
LD ARCH C188 or GEOG C188		4	ENV DES 106	4
Recommended SED Area Concentration #3		3-4	Recommended SED Area Concentration #4	3-4
CED Upper Div Non-Major #3		3-4		
		12-14		**11-12**

Total Units: 101-119

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
5. Comprehend the implications of policy and institutions and their potential to shape future sustainable cities and regions

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 Adviser: Isela Pena-Rager
250 Wurster Hall
isela.penarager@berkeley.edu
510-642-4944

Landscape Architecture Major Adviser: Omar Ramirez
250 Wurster Hall
oramirez@berkeley.edu (rachelk@berkeley.edu)
510-642-0926

Sustainable Environmental Design Major Adviser: Heather Grothjan
250 Wurster Hall
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510-642-0928

Urban Studies Major Adviser: Omar Ramirez
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College Evaluator: Heather Grothjan
250 Wurster Hall
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510-642-0928

Undergraduate Advising Director: Susan Hagstrom
250 Wurster Hall
hagstrom@berkeley.edu

510-642-0408

Associate Dean for Undergraduate Studies: C. Greig Crysler
250 Wurster Hall
cgreigc@gmail.com (hagstrom@berkeley.edu)

Advising Hours

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 Wurster Hall #1800
University of California
Berkeley, CA 94720-1800
510-642-4943

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 (http://ced.berkeley.edu/ced/students/undergraduate-advising/newly-admitted-students)
- Current Students (http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students)
- Graduation and Commencement (http://ced.berkeley.edu/ced/students/undergraduate-advising/graduation-commencement)
- Services and Contract (http://ced.berkeley.edu/ced/students/undergraduate-advising/services-contract)
- Articulation (http://ced.berkeley.edu/ced/students/undergraduate-advising/articulation)
- Policies and Resources (http://ced.berkeley.edu/ced/students/undergraduate-advising/policies-resources)
- Forms and Documents (http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents)

Mission

The College of Environmental Design (CED) Office of Undergraduate Advising helps students graduate in a timely way with a meaningful educational experience at Berkeley. In alignment with the College's Vision and Principles, the Office of Undergraduate Advising collaborates with CED faculty, deans, and student service units across campus toward the common objective of supporting students as they achieve their educational and career goals. Goals include the following:

- Attracting a highly-motivated, diverse pool of applicants
- Connecting students with resources that match their goals and aspirations
- Supporting the development and transformation of undergraduates as they become educated, active, and socially just citizens of the world
- Preparing graduates who are uniquely qualified and highly sought after in their field of choice

Advising Values

Student Success. Above all, the College dedicates itself to maximizing student potential and to helping students succeed in their university experiences. Advisers encourage students to explore their minds and their hearts, challenge them to do their best work, and help them realize their talents and passions and achieve their goals.

Equity & Inclusion. CED is committed to creating an inclusive environment in which any individual or group can be and feel welcomed, respected, supported, and valued. Advisers aspire to provide fair treatment, access, opportunity, and advancement for all students, and to identify and eliminate barriers that prevent the full participation of all.

Health & Well-Being. CED collaborates with campus partners to keep the community healthy by helping students balance the physical, intellectual, emotional, social, occupational, spiritual, and environmental aspects of life.

Advising Excellence. In all that it does, the College strives to deliver personalized advising services of the highest quality by continuously educating itself on developments in the field and to evaluate, improve, and streamline services to support students in obtaining the best education and experience possible.

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 (AIAS), 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 on Twitter (https://twitter.com/CEDNews)

Cal Design Lab

The Cal Design Lab at Wurster Hall is an experimental studio space to promote hands-on, interdisciplinary design activities. Faculty and students from UC Berkeley's many schools and departments can come together at the Cal Design Lab to work on critical design challenges. The goal of the lab is to be a nexus for design research and practice and to facilitate discourse that transcends different design disciplines. For further information, please see the Cal Design Lab's website (http://ced.berkeley.edu/research/cal-design-lab).

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).

CED Connects

CED CONNECTS (http://ced.berkeley.edu/students/ced-connects) is an online LinkedIn networking resource connecting CED students with alumni who might provide advice, information, and support. As a student, you can gain perspective on your long-term career goals, acquire advice on balancing education, career, and extracurricular activities, and receive honest feedback and encouragement.

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.