

SUSTAINABLE ENVIRONMENTAL DESIGN

MAJOR HANDBOOK

COLLEGE OF ENVIRONMENTAL DESIGN

UNIVERSITY OF CALIFORNIA, BERKELEY

2013-2014

For Students Admitted to UCB Fall 2013 and Later

Download this handbook from the web at

<http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/>

SUSTAINABLE ENVIRONMENTAL DESIGN AT BERKELEY

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

Features of the major include:

- The *gateway course*, LD ARCH 12, Environmental Design 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 this knowledge to sustainable development strategies.
- 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 /GEOG C188 Geographic Information Systems. 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 *area requirements* 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; 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.

Minors. See the CED website for information on undergraduate minors offered by the College of Environmental Design.

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DEGREE REQUIREMENTS

Summary of Degree Requirements

- A. University and Berkeley Campus Requirements
- B. CED College Requirements
- C. Sustainable Environmental Design Major Requirements
- D. General Electives (optional to reach 120 units)
- E. Unit and Semester Requirements

A. University and Berkeley Campus Requirements

All undergraduate students at UC Berkeley must complete:

- Entry-Level Writing
- American History and Institutions
- American Cultures

B. CED College Requirements

1. Reading & Composition A & B. See the CED Advising website for more information on R&C course placement. Must be completed with a letter grade of C- or better.
2. Seven Course Breadth Requirement. Up to two CED courses or courses cross-listed with CED may be used to complete Seven Course Breadth (students admitted to UCB FL 13 and later only).
 - Social and Behavioral Sciences—choose one: ECON 1 or 2 Intro to Economics *or* ECON C3 Intro to Environmental Economics & Policy (also fulfills Lower Division Major Requirement)
 - Physical Science--Physics 7A *or* 8A (also fulfills Lower Division Major Requirement)
 - Biological Science—LD ARCH 12 (also fulfills Lower Division Major Requirement)
 - International Studies
 - Arts and Literature
 - Historical Studies
 - Philosophy and Values

For students admitted to UC Berkeley FL 13 and later, only Lower Division ENV DES courses (ENV DES 1, 4A, 4B, 4C) and Lower Division Major Requirements may simultaneously fulfill Seven Course Breadth. However, no more than two CED courses or courses cross-listed with CED may be used to complete Seven Course Breadth. A Seven Course Breadth class that is also being used to complete another CED requirement must be completed with a letter grade of C- or better.

Only one of the remaining Seven Course Breadth may be taken on a Passed/Not Passed basis.

For a list of courses that fulfill the Seven Course Breadth Requirement, see <http://ls-advise.berkeley.edu/requirements/breadth7.html>.

CED students may use any second semester language course to fulfill the International Studies (IS) breadth requirement (exception: students may *not* use their native language to fulfill IS breadth). IS may also be satisfied by participation in the UC Education Abroad Program or a recognized equivalent program.

CED students may apply high school exam credit (Advanced Placement, International Baccalaureate, A-Level Exam) towards many of the above requirements. See the CED website section on High School Exam Credit for more information:

<http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/>

Students who have been away from the University for five or more years are held to the college and major requirements that are in place when they re-enroll at UCB.

3. Lower Division Environmental Design* (3 courses total) Must be completed with a letter grade of C- or better.
 - ENV DES 1 People and Environmental Design
 - ENV DES 4A Design and Activism, 4B Global Cities, 4C Future Ecologies (complete 2 of 3)

Lower Division ENV DES courses (ENV DES 1, 4A, 4B, 4C) and Lower Division Major Requirements may simultaneously fulfill Seven Course Breadth. However, no more than two CED courses or courses cross-listed with CED may be used to complete Seven Course Breadth.

*Lower Division ENV DES requirement applies to all students admitted to UC Berkeley as freshmen beginning FL 2013. This includes students admitted to other colleges at UC Berkeley who enter CED through the Change of College process.

C. Sustainable Environmental Design Major Requirements

1. Lower Division Major Requirements (5 courses total):
These courses must be completed with a letter grade of C- or better. Courses taken to fulfill Lower Division Major Requirements may also be used to fulfill Seven Course Breadth. Up to two CED courses may be used to fulfill Seven Course Breadth.
 - LD ARCH 12: Environmental Science for Sustainable Development
 - MATH 16A or 1A: Analytic Geometry and Calculus
 - STAT 2 or higher: Introduction to Statistics
 - PHYS 7A or 8A: Introductory Physics
 - ECON 1, 2 or ENVECON C1/ ECON C3: Introduction to Economics or Introduction to Environmental Economics and Policy
2. Upper Division Sustainable Environmental Design Core – Inside College of Environmental Design courses (9 courses total):
You must earn a 2.0 average in Upper Division Major Requirements. A course used to fulfill an Upper Division Major Requirement may not also be used to fulfill Seven Course Breadth.
 - ENV DES 100: The City: Theories and Methods (SP)
 - ENV DES 102: Critical Approaches to Sustainable Urbanism & Design (FL)
 - ENV DES 106: Sustainable Environmental Design Workshop (SP)
 - ARCH 140: Energy and Environment (SP)
 - ARCH 242: Sustainability Colloquium; must take for 2 units (FL)
 - CY PLAN 119: Planning for Sustainability (FL)
 - LD ARCH 110: Ecological Analysis (FL)
 - LD ARCH 130: Sustainable Cities & Landscapes (SP)
 - LD ARCH /GEOG C188: Geographic Information Systems (FL)
3. Sustainable Environmental Design Area Requirements (4 courses total) You must earn a 2.0 average in Upper Division Major Requirements. Choose 4 courses from each of the following 4

areas or 2 courses from 2 areas for specializations. A course used to fulfill an Upper Division Major Requirement may not also be used to fulfill Seven Course Breadth.

The intent of area courses is to provide students with opportunities to deepen their knowledge about specific issues in sustainability. Each of the area requirements 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

- BUS ADM 107: The Social, Political, and Ethical Environment of Business (3)
- BUS ADM 180: Introduction to Real Estate and Urban Land Economics (3)
- CY PLAN 113A: Economic Analysis for Planning (3)
- CY PLAN 113B: Community and Economic Development (3)
- CY PLAN/IAS/GPP 115: Urbanization in Developing Countries (4)
- ENVECON 100: Microeconomic Theory with Application to Natural Resources (4)
- ENVECON/INTAREAST C175: The Economics of Climate Change (4)
- ENE,RES 151: Politics of Energy and Environmental Policy (4)
- ENE,RES 190: Seminar in Energy, Environment, Development and Security 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 C193A/EDU C193A: Environmental Education (3)
- PUB POL 182: Environment & Technology from the Policy & Business Perspective (4)

Society, Culture and Ethics

- ANTHRO 137: Energy, Culture and Social Organization (4)
- ARCH 110AC: The Social and Cultural Basis of Design (4)
- ARCH 133: Architectures of Globalization: Contested Spaces of Global Culture (3)
- CY PLAN 118AC: The Urban Community (4)
- ENE,RES 100: Energy and Society (4)
- ENE,RES 101: Ecology and Society (3)
- ESPM 148: Political Ecology (4)
- ESPM 151: Society, Environment, and Culture (4)
- ESPM 161: Environmental Philosophy and Ethics (3)
- ESPM 163AC: Environmental Justice: Race, Class, Equity, & the Environment (4)
- ESPM C167/PUBHEAL C160: Environmental Health and Development (4)
- ESPM 155: Sociology of Natural Resources (4)
- LD ARCH 140: Social and Psychological Factors in Open Space Design (3)
- LD ARCH 141AC: The American Landscape: Multicultural Difference and Diversity. (3)
- SOCIOL 123: Corporate Social Responsibility and Green Business (4)
- SOCIOL 128: Society and the Environment (4)

Resources and Environmental Management

- ENE,RES 102: Quantitative Aspects of Global Environmental Problems (4)
- EPS 170AC: Crossroads of Earth Resources and Society (4)
- ESPM 50AC: Introduction to Culture and Natural Resource Management (4)
- ESPM 102D: Resource and Environmental Policy (4)
- ESPM 102C: Resource Management (4)
- ESPM 117: Urban Garden Ecosystems (4)

- INTEG BIO 152: Environmental Toxicology (4)

Design and Technology

- ARCH 105: Deep Green Design. (4)
- ARCH 122: Principles of Computer Aided Architectural Design. (4)
- ARCH 130: Introduction to Architectural Design Theory and Criticism. (4)
- ARCH 242: Sustainability Colloquium; P/NP only (2 units only)
- ARCH 149/249: Special Topics in Energy and Environment. (1-4)
- ARCH 160: Introduction to Construction. (4)
- CY PLAN/ARCH C111: Introduction to Housing: An International Survey. (3)
- CY PLAN C114/CEE154: Introduction to Urban and Regional Transportation. (3)
- CY PLAN 116: Urban Planning Process--The Undergraduate Planning Studio. (4)
- CY PLAN 140: Urban Design: City-Building and Place-Making. (3)
- ENE,RES 175: Water and Development. (4)
- ENV DES 11A: Introduction to Visual Representation and Drawing. (4)
- ENV DES 11B: Introduction to Design. (5)
- GEOG 125: The American City. (4)
- INFO 146: Foundations of New Media. (3)

Students who have been away from the University for five or more years are held to the college and major requirements that are in place when they re-enroll at UCB.

D. General Electives

Students may need to take additional courses to reach the 120 units required for graduation.

E. Unit and Semester Requirements

The Bachelor of Arts degree in the College of Environmental Design requires the successful completion of at least 120 semester units of courses subject to certain rules:

- A maximum of 16 units of Special Studies coursework (courses numbered 97, 98, 99, 197, 198, or 199) is allowed towards the 120 units; a maximum of four is allowed in a given semester; only upper division students (60 or more units completed) may enroll in 197, 198, or 199 coursework.
- A maximum of 4 units of Physical Education from any school attended will count towards the 120 units.
- Students may receive unit credit for courses graded P (including P/NP units taken through EAP) up to a limit of one-third of the total units taken and passed on the Berkeley campus at the time of graduation.
- No more than 60 units from a single department can be used towards this 120 minimum.

Unit Minimum

CED students must enroll in at least 12 units each fall and spring semester. *(Students entering UCB with no prior units would need to complete 15 units per semester to graduate in four years.)*

Semester Limit

Students admitted as freshmen must graduate within eight fall/spring semesters at UC Berkeley. Students admitted as transfer students must graduate within four fall/spring semesters at UC Berkeley. EAP and UCDC count towards this semester limit; summer session, UC Extension, and

study abroad through non-UC programs do not. Students approved for simultaneous degrees in two colleges may be granted an additional semester.

Senior Residence Requirement

After reaching senior status (with 90 semester units earned), students must complete at least 24 of the remaining 30 units in at least two semesters in residence at UC Berkeley. To count as residence, a semester must consist of at least 4 passed units. [Intercampus Visitor](#), [Education Abroad Program](#), [UC Berkeley-Washington Program](#), and [UC Berkeley Extension](#) units are **not** applied to this requirement.

Students may use [Berkeley Summer Sessions](#) to satisfy one semester of the Senior Residence Requirement, provided that four units of course work are completed.

Modified Senior Residence Requirement

Participants in the [UC Education Abroad Program](#) (EAP) or the [UC Berkeley-Washington Program](#) may meet a Modified Senior Residence Requirement by completing 24 (excluding EAP) of their final 60 semester units in residence. At least 12 of these 24 units must be completed after senior status (90 units) is reached.

Most students automatically fulfill the residence requirement by attending classes here for four years. In general, there is no need to be concerned about this requirement, unless you go abroad for a semester or year or want to take courses at another institution or through University Extension during your senior year. In these cases, you should make an appointment to see an adviser to determine how you can meet the Senior Residence Requirement.

SAMPLE GRADUATION PLAN

FRESHMAN

Fall Semester	Units	Spring Semester	Units
R&C A	4-6	R&C B	4
ENV DES 1	3	ENV DES 4A/B/C*	3
LD ARCH 12 / BS Breadth #1	4	PHYS 8A / PS Breadth #2	4
MATH 16A	3	Breadth #3	2-4
TOTAL	14-16	TOTAL	13-15

SOPHOMORE

Fall Semester	Units	Spring Semester	Units
ENV DES 4A/B/C*	3	Econ 1 / SBS Breadth #6	4
STAT 2	4	ENV DES 4A/B/C*	3
Breadth #4	2-4	Breadth #7	2-4
Breadth #5	2-4	Elective	1-4
TOTAL	12-15	TOTAL	12-15

*Complete 2 of 3 from ENV DES 4A, 4B, 4C

JUNIOR

Fall Semester	Units	Spring Semester	Units
ENV DES 102	4	ARCH 140	4
LD ARCH 110	4	LD ARCH 130	3
CY PLAN 119	3	SED Area Requirement #2	2-4
SED Area Requirement #1	2-4	SED Area Requirement #3	2-4
TOTAL	13-15	TOTAL	12-15

SENIOR

Fall Semester	Units	Spring Semester	Units
ARCH 242	2	ENV DES 100	4
LD ARCH /GEOG C188	4	ENV DES 106 (Capstone)	5
SED Area Requirement #4	2-4	Elective	3
Elective	0-4	Elective	0-4
TOTAL	12-14	TOTAL	12-16

Each student's plan will vary, depending on interests. See your adviser if you are interested in applying for graduate school, studying abroad, attending summer school, pursuing a minor or second major, etc.

GRADE REQUIREMENTS

- A 2.0 UC GPA is required for graduation.
- A 2.0 GPA within the major is required at time of graduation.

GRADUATING WITH HONORS

To graduate with distinction, you must meet the grade-point average (GPA) requirement and complete at least 50 units in residence at Berkeley (this may include UCB Extension XB units and up to 20 units from UCDC or EAP), of which 43 units must be letter-graded (not including physical education activities courses). *Transfer students must make sure they complete 50 units at Berkeley to qualify for honors.*

Your GPA in all letter-graded courses taken at Berkeley must be equal to or higher than the GPA established for honors in the year in which you graduate. These GPA cut-offs change slightly each year and are posted on the CED website.

DEADLINES AND POLICIES

See the CED advising website for the most up-to-date information:

<http://ced.berkeley.edu/ced/students/undergraduate-advising/>

CED MINORS

Minors offered by the college of Environmental Design include:

- Architecture
- City & Regional Planning
- Environmental Design and Urbanism in Developing Countries
- Geospatial Information Science and Technology (College of Natural Resources for paperwork and advising)
- History & Theory of Landscape Architecture & Environmental Planning
- History of the Built Environment
- Social & Cultural Factors in Design
- Sustainable Design (not available to SED majors)

Minors generally consist of five upper-division courses plus any lower division prerequisites to those courses. Any course taken for your minor may also be used to fulfill major and upper-division CED non-major requirements. Courses used to fulfill a breadth requirement may also be used to satisfy a minor requirement. Students may apply the non-CED version of a CED cross-listed course towards a minor.

See [CED Minors](#) on the web for more information. The *CED Minor Completion Form* is available on-line in the Minors section of [CED Forms & Documents](#). You must fill out the completion form if you want your CED minor to show on your transcript.

CED students may pursue minors in any of the other undergraduate schools and colleges at UC Berkeley.

DEGREE AUDIT REPORTING SYSTEM (DARS)

DARS is a service designed to assist you with planning and tracking your progress toward graduation by comparing or auditing your academic record against the requirements for your bachelor's degree. Your DARS report includes completed UC Berkeley courses, transfer credit, and in-progress courses (the ones you're taking now).

To request a DARS report, [go to the Bear Facts page](#), click the DARSweb link, and log in with your CalNet ID and Passphrase.

- Click the "Audits" tab and select "Request New Audit."
- Select either "Run for current major" (the default) or for any "selected program" (a "what if" scenario).
- Click the "Submit New Audit" button.
- Wait a few moments for your report to run, then click the "Refresh List" button. You may have to click it a few times.
- When your new request appears on the list below, click the "Open Audit" button to its left.

There is no limit to the number of DARS reports you can request, but only the ten most recent will be saved. The most recent report always appears at the top of the list.

Request a new DARS Report at least once a semester and whenever you change your course schedule. Each report is up-to-date as of the date and time it is generated. Changes, updates or corrections to either your degree requirements or your academic record (e.g., adding or dropping courses; grade changes; new transfer credit; declaring, adding or changing majors, etc.) will change the results of your report.

DARS is an unofficial report and does not eliminate the need for advising! It should be used in consultation with College and Major advisers, who make the final determination about completion of degree requirements.

If you notice any errors in your Degree Audit, submit the DARS Correction Request form (available at <http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/>) to the Office of Undergraduate Advising in 250 Wurster.

FINANCIAL AID BUDGET APPEALS

Students are allowed to submit a request to the Financial Aid Office to increase the size of their standard budget for certain expenses that are above the standard amounts: housing, a computer (once every three years), uninsured medical/dental/optical expenses, and child care.

In addition, CED students who are enrolled in a studio course may submit a budget appeal for additional loan or work-study to help cover studio-related expenses. To request additional financial aid to help with studio expenses, you will need to include with your appeal the “Estimated Undergrad Studio Expenses for Financial Aid Appeals” document, available on the CED website: <http://ced.berkeley.edu/ced/students/undergraduate-advising/forms-documents/>

For more information on budget appeals, see <http://students.berkeley.edu/finaid/undergraduates/budgetappeal.htm>.