

Specialized Programs of Study in

Sustainability Studies

**BE YOUR BEST
WITH BERKELEY**
Become a Leader in
an Emerging Field



UC Berkeley Extension



You can lead the way in creating a more sustainable world,

whether you work in the public, private, or nonprofit sector—or simply feel compelled to make a difference. With Sustainability Studies from UC Berkeley Extension, you receive leading-edge training on timely topics such as sustainable design of the built environment, responsible business practices, clean technology, renewable energies, sustainable transportation planning, and more. The knowledge you gain now can begin transforming business practices and policy throughout public and private industry.



At UC Berkeley Extension, you can explore the latest federal and state legislation, policies, and standards affecting sustainability efforts, such as environmental management and emissions limits in California. Committed to recognized standards, Extension is an official Education Provider of the U.S. Green Building Council (USGBC), the nonprofit organization that developed the LEED® (Leadership in Energy and Environmental Design) Green Building Rating System. Several of Extension's advanced courses in solar, sustainable construction, energy, and design are USGBC-approved and offer Green Building Certification Institute (GBCI) continuing education credit—a testament to the quality of these offerings.



With USGBC projecting nearly 8 million green-building jobs in the next few years—injecting the U.S. economy with \$554 billion, including \$396 billion in wages—the need for experts in sustainability is critical. And as the industry evolves, requiring new yet-to-be-defined roles, the demand becomes even more acute. UC Berkeley Extension prepares you to meet these needs and identify new areas to apply sustainable practices in the future. Get the education you need now to assume the leadership roles in the current and future green economy.



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Sustainable Design

Sustainable design involves applying the forms and patterns from nature to the creation of built environments and products so that human activity sustains, and even regenerates, living systems without harm. Learning these ideas and applying the principles of biomimicry—copying nature’s efficiencies in manufacturing and design processes—enables you to create innovative solutions to current design challenges.

With the yearlong Professional Program in Sustainable Design, you acquire the knowledge needed by architects, designers, builders, developers, project managers, and other decision makers to become leaders in sustainable development. Choose from one of three suggested tracks—Architecture and Interiors, Urban Sustainability and Community Design, and Sustainable Site Design—to start making a difference with design. More information about each track is available online.

Prerequisites for Admission

There are no prerequisites for the Professional Program in Sustainable Design, but a bachelor’s degree is recommended.

“The Sustainable Design program was a major factor that contributed to my LEED AP accreditation and my volunteer internship at San Francisco’s Office of the Mayor under the Greening Director.”

—MELINDA SANTOS, STUDENT
PROFESSIONAL PROGRAM IN SUSTAINABLE DESIGN





Required Courses

2 Courses, 4 Electives

Minimum 8 Semester Units, 120 Hours of Instruction

Principles of Sustainable Design X400.6

Examine the history and development of sustainability as a social goal, and explore its implications for the design of built environments. Explore the latest tools, techniques, and materials of sustainability, as well as the government programs, legislation, industry regulations and codes, green certifications, LEED, and nonprofit organizations involved.

Practical Applications of Sustainable Design X470.1

Learn to take responsibility for your work by understanding the impact your designs have on the environment and ways to control this impact. Through research of materials, systems, and construction methods, you explore the ways to design and build in an environmentally responsible manner.

Electives*

The Building Envelope X413.3

USGBC-approved for GBCI CE hours

Ecological Cities X400.7

The Role of the Designer in a Sustainable World X411.7

Sustainable Industrial Design X470.3

Urban Dirt: Designing Sustainable Landscapes On-Structure X411.6

Urban Permaculture Design X449

Zero Energy Homes X402.2

USGBC-approved for GBCI CE hours

*Visit the website for a full list of electives.



Learn more at extension.berkeley.edu/spos/sustain.html

Solar Energy and Green Building

With courses approved by the U.S. Green Building Council (USGBC), you can acquire the foundational knowledge identified by top professional organizations in the solar and green building industries. In addition to an introduction to the solar industry—including perspectives on policy, economics, technology, best practices, emerging market trends, opportunities, and threats—learn the latest on green building design and construction and LEED Rating Systems. The knowledge you gain from the program prepares you for the North American Board of Certified Energy Practitioners (NABCEP) PV Entry Level Exam, as well as the Green Building Certification Institute (GBCI) Green Associate and LEED AP exams.

If you are an architect, planner, engineer, builder, construction manager, facility manager, LEED consultant, project manager, utility manager, policy maker, attorney, developer, investor, real estate professional, or entrepreneur, this program offers the essential resources to effectively plan your career in the evolving solar and green building industries.

Prerequisites for Admission

There are no requirements for the Professional Program in Solar Energy and Green Building. However, it is recommended that you have a bachelor's degree, basic math skills, and some experience in the building industry.





Required Courses

2 Courses, 4 Electives

8 Semester Units, 120 Hours of Instruction

Introduction to Photovoltaic Systems X440

If you are considering a career change to solar energy, this introductory-level class teaches the terminology and basic principles of photovoltaic (PV) technology and systems.

Introduction to Concepts of Green Building X495

Examine case studies of LEED-certified building projects, concepts of integrated design, third-party verification, and the LEED administration process.

Application of Green Building Concepts X495.1

Gain an overview of LEED and the exam content for the LEED AP Building Design + Construction (BD+C) credential from GBCI.



USGBC-Approved Electives* for GBCI CE Hours

Building Commissioning for LEED X493.1

The Building Envelope X413.3

Investment-Grade Solar System Feasibility Studies X430

*Visit the website for a full list of electives.



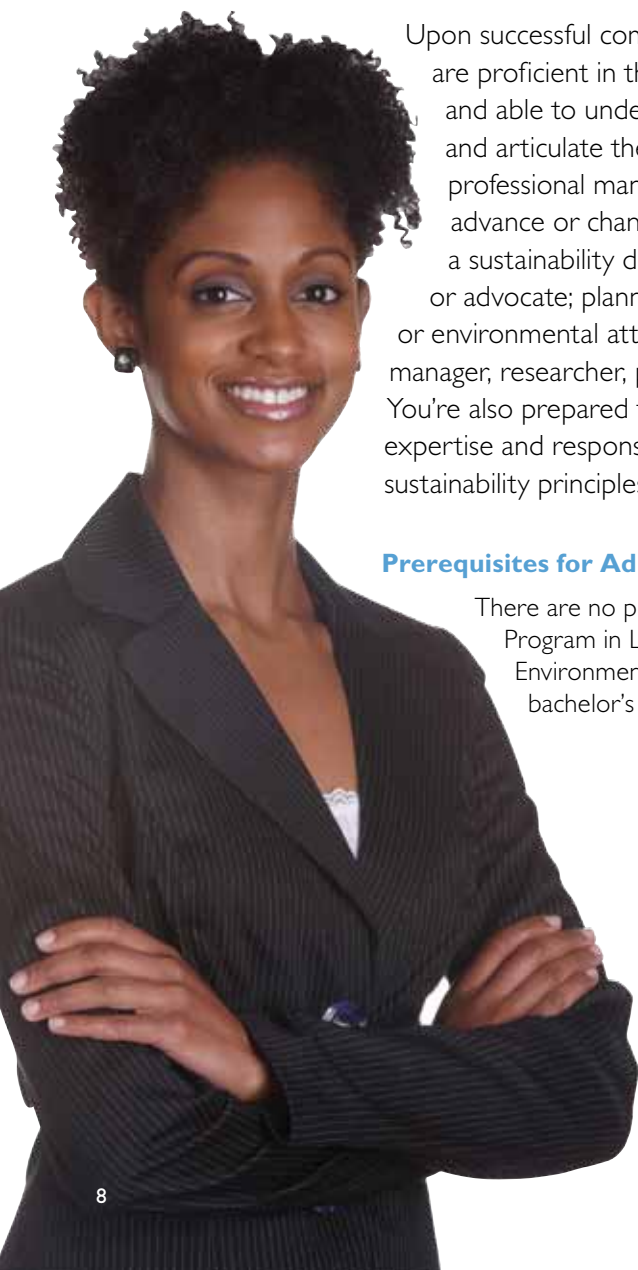
Leadership in Sustainability and Environmental Management

Take advantage of new opportunities in the emerging global green economy with a structured selection of courses on sustainability leadership and change management, environmental law and policy, compliance management systems, and climate change risk-mitigation strategies. In addition to learning how sustainability practices can be implemented in cost-effective ways in public and private sectors worldwide, you acquire a set of management tools based on sustainability leadership principles with which to communicate, collaborate, and innovate.

Upon successful completion of the program, you are proficient in the language of the industry and able to understand, research, analyze, and articulate the industry's viewpoints in a professional manner—ideal if you aspire to advance or change your career to become a sustainability director; green investor or advocate; planner; compliance manager; or environmental attorney, manager, program manager, researcher, policy maker, or consultant. You're also prepared to further develop advanced expertise and responsibility within the context of sustainability principles.

Prerequisites for Admission

There are no prerequisites for the Professional Program in Leadership in Sustainability and Environmental Management, but a bachelor's degree is recommended.





Required Courses

4 Courses, 1 Elective*

8 Semester Units, 120 Hours of Instruction

Environmental Law and Regulation X440

From the perspective of permitting and operational compliance, study federal, state, and local environmental legislation and regulations. Get an overview of the key program elements that environmental managers, regulators, and consultants need to know.

Introduction to Climate Change, Environment, and Sustainability X444

Equip yourself with the basic concepts of environmental, ecological, and agricultural sciences to begin planning for a sustainable future. Review scientific evidence and examine issues related to the “chemical circle,” biodiversity, ecological restoration, and environmental agriculture.

Environmental Management Systems and ISO 14000 X422

Environmental Management Systems (EMS) provide private and governmental organizations with a systematic approach to environmental compliance and sustainability. Using ISO 14000 as a framework for developing an EMS, gain an understanding of the legal and financial aspects of environmental management, modeling, and analysis.

Sustainability Leadership—Strategies and Paradigms X419

Gain the skills to effectively communicate sustainability in your work environments; link green initiatives to cost savings and brand recognition; and engage shareholders and stakeholders in making decisions that move individuals, teams, and companies toward sustainability.

*Visit the website for a full list of electives.

Sustainability and Transportation

California's increased commitment to reducing greenhouse gases means that understanding how to plan, design, and manage sustainable transportation systems is more important than ever before. This program helps you recognize the benefits of sustainability management and apply its techniques to improve transportation decision making. In addition to effective approaches to solving typical planning problems, you gain skills in using life cycle analysis methodologies to evaluate transportation systems.

Whether you come from the public or private sector, you gain an understanding of the principles of sustainability management and the impact of climate change law on businesses and governments. Acquire the skills to understand, assess, analyze, and manage issues related to sustainable transportation, energy use planning, and climate change. Focusing your course of study in this important field puts you on the path to change or advance your career.

Prerequisites for Admission

General knowledge in transportation systems, planning processes, and related issues is recommended but not required for the Professional Program in Sustainability and Transportation.





Required Courses

2 Courses (2 Semester Units), **3 Workshops** (2.0 ceu)

50 Hours of Instruction

Introduction to Sustainable Transportation Design Plans X497

Review basic transportation design principles that promote sustainable alternatives and minimize environmental impact. Then, examine additional design considerations such as end-user preferences, stakeholder perspectives, ease of implementation, ongoing facilities operation, and maintenance concerns.

Energy for Sustainability: Technology, Planning, and Policy X436

Review the environmental impact of global energy systems, energy-use life cycle, and alternative options. By examining energy efficiency, conservation, renewable energy sources, green buildings, environmental responsibility, and emerging clean tech innovations, you study the financial impact these strategies have on the economy and their effect on global climate change.

Transportation Sustainability: Life Cycle Assessment

Study materials consumption, waste generation, land use, and human health effects from passenger and freight transportation—the impact of which is often overlooked. Thoroughly examine the life cycle assessment method, and understand how current tools evaluate environmental, technological, social, and economic policies and decisions in the transportation sector.

Introduction to Sustainability Management

Examine sustainability in the context of environmental, economic, and social forces that shape emerging policies and management decisions. Learn basic information, concepts, methods, and tools for assessing, implementing, and managing sustainability initiatives to build a foundation for a sustainable future.

Climate Change and Law AB 32

A leader in climate-change policy for a number of years, California recently enacted Assembly Bill 32 to establish statewide emission limits and enforceable standards to meet those limits. Learn requirements set forth in AB 32 and other laws.

Sustainability and Energy

Whether you work in the public or private sector—from government agencies and nonprofit organizations to utility companies, energy consulting firms, and other businesses—prepare yourself to manage energy use and its impact on the environment. Examine energy sustainability from the perspectives of technology, municipal planning, and policy, and learn to develop sustainable energy systems successfully. Understand the impact of current energy use patterns on climate change and of climate change law on local government and businesses.

This program is ideal if you wish to change or advance your career; it enables you to make assessments, analyze, and manage issues related to energy use, climate change, and sustainability. Focus your course of study in the field of clean energy today to make a difference tomorrow.

Prerequisites for Admission

General knowledge of energy use and change management issues is recommended but not required for the Professional Program in Sustainability and Energy.

Required Courses

2 Courses (2 Semester Units), 2 Workshops (1.4 ceu)
44 Hours of Instruction

Energy Use and Climate Change X435

Learn how reliance on fossil fuels creates issues with security, climate change, and public health.

Energy for Sustainability: Technology, Planning, and Policy X436

Review the environmental impact of global energy systems, energy-use life cycle, and alternative options.

Introduction to Sustainability Management

See p. 11 for course description.

Climate Change and Law AB 32

See p. 11 for course description.

"I enjoyed being challenged by a dynamic curriculum taught by a professional, experienced faculty. As a technology marketing professional, the program enriched and enhanced my understanding of data center energy issues and green IT solutions. And networking with faculty and fellow students has proved invaluable."

—RICH SCHWERIN, GRADUATE
PROFESSIONAL PROGRAM IN
SUSTAINABILITY AND ENERGY

Learn more at extension.berkeley.edu/spos/energy.html



Smart Grid Technology

As governments, businesses, and home owners increasingly scrutinize the transmission and distribution of energy, many see the cost-reducing and clean-air benefits of a network-enabled, or smart, power distribution grid as a substantial improvement. This entry-level program provides a solid foundation in smart grid technology (SGT), including a technical overview of networking, electrical engineering, and power transmission and distribution. In addition to a wide range of smart grid theory, you study deployment issues, vendors, demand shaping, and statutory and regulatory requirements—instruction that prepares you to seize new opportunities in the emerging field of networked power.

If you're a sustainability professional looking for technical knowledge or a technology worker interested in migrating to SGT, the program provides the education you need. The program is also an excellent fit if you're an urban planner, home developer, real estate professional, or policy maker looking for new or advanced opportunities in public utilities, commercial construction, renewable energy, or electric transportation.

Prerequisites for Admission

There are no prerequisites for the Professional Series in Smart Grid Technology.

4 Required Courses

4 Semester Units, 60 Hours of Instruction

Smart Grids 1: Introduction X423

Learn about the new intelligent energy grid that supports the green energy initiatives of the 21st century.

Smart Grids 2: Energy-Efficient Transmission X423.1

From long-distance high-voltage lines to local distribution, study the technical, economic, and environmental issues of energy transmission.

Smart Grids 3: Command and Control X423.2

Review the communication technology for distribution automation of AC energy, then advance to technology trade-off considerations.

Smart Grids 4: Metering and Home Area Networks X423.3

Gain a technical understanding of smart meters and home power networking.

Learn more at extension.berkeley.edu/spos/smartgrid.html

Professional Program in

Corporate Social Responsibility Reporting

Ensure your organization considers sustainability in its decision-making processes, and learn how to effectively articulate socially responsible practices to key stakeholders. With the skills to improve any organization's sustainable business practices, green purchasing, and supply chain management—along with knowledge of best practices and strategies—you're ready to fill the business world's growing need for managers who understand and can report on the value of corporate social responsibility and sustainable practices.

No matter if you're a business manager in the public or private sector or a corporate manager, planner, consultant, business owner, or sustainability manager, you gain an understanding of sustainability management principles and the impact of climate change law on businesses and governments. With the ability to make assessments, compile professional reports, and take on a leadership role in sustainability, you're ready to change or advance your career in the evolving green economy.

Prerequisites for Admission

General knowledge in business writing, management principles, and supply chain management is recommended but not required.

Required Courses

2 Courses (2 semester Units), 3 Workshops (2.1 ceu)
51 Hours of Instruction

Greening Your Supply Chain—Life Cycle Assessment Tools X434

Understand how products, businesses, and services are measured against “green” standards.

Sustainability Leadership—Strategies and Paradigms X419

See p. 9 for course description.

Introduction to Sustainability Management

See p. 11 for course description.

Corporate Social Responsibility Reporting

Study the principles of Corporate Social Responsibility (CSR) reporting according to the Global Reporting Initiative (GRI) standards.

Climate Change and Law AB 32

See p. 11 for course description.

Learn more at extension.berkeley.edu/spos/csr.html

Professional Program in

Responsible Global Change Management

New technologies can help counteract the effects of global change in several dynamic fields, and this program provides the ideal preparation. By examining the full range of issues and career options related to sustainability, you get an introduction to the interrelated issues of environmental quality, sustainability, and ecosystem health presented in language relevant to business, government, and nonprofit organizations. You also learn the best practices and leadership skills that result in career success.

With an understanding of sustainability and environmental management principles, you are able to analyze issues faced by businesses and policy makers—whether you are an environmental or sustainability manager, planner, consultant, or business owner.

Prerequisites for Admission

General knowledge in environmental management, ecosystems, and change management issues is recommended but not required.

Required Courses

2 Courses (2 Semester Units), 4 Workshops (2.8 ceu)
58 Hours of Instruction

Overcoming Barriers to Implementing Sustainable Change X417

Learn techniques that sustainability coordinators, green-team staffers, and environmental health and safety staff employ.

Sustainability Leadership—Strategies and Paradigms X419

See p. 9 for course description.

Introduction to Sustainability Management

See p. 11 for course description.

Introduction to Environmental Management

Learn environmental issues and management challenges from local, national, and international perspectives.

Climate Change and Law AB 32

See p. 11 for course description.

Introduction to Ecological Asset Management

Study ecological asset management for managing investments in sustainable ecosystem services, and learn how federal and state agencies apply these policies.

Learn more at extension.berkeley.edu/spos/globalchange.html

Completion Requirements

You must complete all academic courses with a grade of C or better and receive credit for all continuing education unit (CEU) courses (where applicable). The time to complete each curriculum varies by program. However, requirements may be updated based on new developments in the field of study; we recommend completing the curriculum in a timely fashion. Specifics for each program are available online.

How to Register for Specialized Programs of Study

To register for any of the Sustainability Studies programs, please complete and submit the form at extension.berkeley.edu/cert/register.html, and include the nonrefundable program registration fee.

You may enroll in individual courses without registering for a specialized program of study.

Value of a UC Berkeley Extension Specialized Program of Study

As the continuing education arm of the University of California, Berkeley, UC Berkeley Extension is a respected provider of adult and professional education. Fulfilling the requirements for a UC Berkeley Extension specialized program of study reflects the successful completion of a high-caliber, in-depth sequence of courses.

USGBC Education Provider Program

UC Berkeley Extension is a recognized USGBC Education Provider. Additional USGBC course approvals are ongoing; see the website for the most current roster of USGBC-approved courses. The USGBC Education Provider Program Logo is a registered trademark owned by the U.S. Green Building Council and is used by permission.

Learn More

For more information about the Professional Program in Sustainable Design, visit extension.berkeley.edu/spos/sustain.html, contact designarts@unex.berkeley.edu, or call (415) 284-1041.

For more information about all other Sustainability Studies programs, visit extension.berkeley.edu/sustainability, contact course@unex.berkeley.edu, or call (510) 642-4151.



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