

Sustainable Landscape Professional Certificate Program

Sonoma State University, School of Extended Education

2008 Program Year

Program Syllabus

A *Sustainable Landscape Professional Certificate* will be awarded by Sonoma State University, School of Extended Education to students who fulfill the following requirements:

- Attendance at all **6 courses**
- Completion of a **Student Project/Practicum**

Students who complete this training will be able to present themselves as a *Sustainable Landscape Accredited Professional* and utilize the program logo on their business correspondence and marketing materials.

The program curriculum has as its primary goal the education of the various practicing professionals in the landscape design, installation and maintenance fields in sustainable landscape practices. Landscapes, managed plantings adjoining buildings, provide not only an aesthetic enhancement to the built environment but can also enhance natural systems, create habitat for many wildlife species and act as a buffer to minimize / eliminate built-environment impacts on natural systems.

The program curriculum also has the goal of meeting the requirements and embracing the principles contained in several regional and national green or sustainable landscape standards / guidelines. These standards include the U.S. Green Building Council's *LEED*, Build It Green's *GreenPoints*, Alameda County's *Bay-Friendly Landscape Guidelines*, and the Sonoma County Water Agency's *Qualified Water Efficient Landscaper Guidelines*.

The SSU program synthesized the intent of the above-mentioned standards/guidelines and developed six program courses:

- Ecological Principles
- Site Assessment and Development
- Soils Resources
- Water Resources
- Plants and Plant Communities
- Operation, & Maintenance

We acknowledge that many of the specific topics covered in an individual course have direct relevance to more than one course. As an example, when selecting plants, soil and water considerations are of critical importance. The program intent is to emphasize the inter-relatedness of all the components of a landscape. But in order to present the subjects within a format and structure that has the semblance of logic and is easily managed by students, divisions have been made.

The complete set of program courses will be offered twice per year; **Cycle One**, January to June; **Cycle Two**, July to December. The narrative below gives a description of each course. The last section of the syllabus gives more information about the intent and structure of the Student Project/Practicum.

Course 1 - **Ecological Principles** - Instructors: **Geoff Hall and Josiah Cain**
(Cycle One, **January** and Cycle Two, **July**)

This course presents the questions we should be asking at every stage of the development process to keep us on an ecological track. Practices that increase our understanding of surrounding ecosystems and natural systems in general are clearly detailed with the idea of optimally integrating the building, natural systems and the community.

With newly introduced federal, state and local storm water and potable water regulations and a push for development projects that meet high environmental standards, the demand for sustainable landscape practices is increasing rapidly.

Topics to be covered include:

- Ecological Systems Interaction
- Native Flora and Fauna Survey
- Native Flora and Fauna Protection Plans
- Ecological Restoration Techniques
- Development Impact Mitigation
- Climate Zones and Microclimates
- Integrated Design Process
- Lifecycle Assessment

Course Reading Assignment: Reader

Course 2 - **Site Assessment and Development** – Instructor: **Geoff Hall**
(Cycle One, **February** and Cycle Two, **August**)

This course starts with a broad (regional) focus and narrows to the scale and scope of the individual site.

We begin by describing the many downsides of sprawl, the current approach to land use. Then we present **Smart Growth** and Sustainability as the antithesis of Sprawl. We discuss the local and regional planning process and highlight institutional barriers to Sustainable Landscape practices.

At the heart of an ecological approach to development is a thorough site analysis, and this class will provide students the tools and techniques for gathering and organizing site analysis data. A key learning objective of this course is to increase the performance of the building, site and associated systems and optimize the building's relationship with the adjoining natural systems.

Topics to be covered include:

- Smart Growth and Regional Planning
- Site Assessment Methodologies
- Site Development Waste Reduction
- Project Scale
- Bioclimatic Design
- Standards, Regulations and Policies

Course Reading Assignment: Reader

Course 3 - **Soil Resources** – Frédérique Lavoipierre (Cycle One, **March** and Cycle Two, **September**)

Soils are the living foundation of the landscape. As with any other foundation the first step is to assess existing conditions. Soil supports a large and diverse community of organisms, and design and maintenance decisions affect the living component of the landscape. Often compaction, loss of topsoil and storm water management are issues to address, not only in landscapes around new homes but in existing landscapes. Soil considerations affect plant choice, hardscape design and irrigation decisions. Knowledge of composting methods, mulch types and the benefits of bioremediation are included in our survey of soils.

Course Reading Assignment: To be announced

Course 4 - **Water Resources** - Instructor: **Josiah Cain**
(Cycle One, **April** and Cycle Two, **October**)

We begin with a view of water at the global scale, and a sense that water is a finite resource that is constantly being recycled. The course discusses water end uses on a national scale, regional and individual site, as well as the differences between residential and commercial scale projects. Wise water use in a sustainable project would follow this sequence: Need less, Reuse, Recycle, Site Capture and then Offsite Sources.

Since landscape water use is often greater than water use inside buildings, we focus on water efficient landscape designs. Then we look at a range of, until now, **alternative practices** that are difficult to classify, including **rainwater catchment**. **Wastewater** issues, including **graywater** and **biological wastewater treatment systems**.

Topics to be covered include:

- Hydrologic Cycle
- Watersheds
- Water Sources
- On-Site Water Management
- Water Efficiency
- Water and Habitat
- Standards, Regulations and Policies

Course Reading Assignment: Reader

Course 5 - **Plants and Plan Communities** – Instructor: **Kate Frey**
(Cycle One, **May** and Cycle Two, **November**)

Landscapes commonly seen in our dry western region often have needs contradictory to what our climate and resources offer. These resource-hungry landscapes have typically been determined by a sense of aesthetics generated from areas with greater rainfall, and a long tradition of ideas about complete hierarchy over nature, producing landscapes that function as resource sinks, and contribute detrimentally to the environment and the insects and birds that live in or migrate through our communities. This class will explore the origins and development of our relationship with nature and how these traditional associations often guide our current approach to the landscape. After setting the landscape in a historic context, we will consider a more sustainable approach for our climate and look at key considerations to this more objective tactic, such as right

plant right place; plant, soil and climate interactions, plant communities, native plants, Mediterranean region plants, lawns and lawn alternatives, plants for habitat, edible plants and plant data bases.

Topics to be covered include:

- Plant Selection Criteria
- Plant Communities
- Hydro Zones
- Native Plants
- Green/Living Roofs
- Plants and Habitat
- Plant Databases
- Case Studies

Course Reading Assignment: Reader

Course 6 - **Operation, & Maintenance**– Instructor: **Rick Taylor**
(Cycle One, **June** and Cycle Two, **December**)

A landscape design can have all of the right sustainability ingredients, but ultimately the maintenance and support infrastructure will determine the long-term success of that design. This course will deal with the details of a maintenance component, including integrated pest management, and the specifying of infrastructure materials (recycled content, reused, salvaged...) that support and reflect the initial project goals.

We will discuss not only new designs but also how to migrate existing standard landscape designs to a more sustainable model. The design and maintenance of irrigation systems will be one of the key topics that will be covered in this course because although sustainable landscape designs emphasize low water use, irrigation systems are often necessary for establishing new plantings. These systems must be more flexible and consider the range of options from temporary to permanent installations. A key learning objective of this course is to achieve highly integrated sustainable landscapes that have not only ecological considerations but also practical day-to-day maintenance considerations that result in reduced on-going labor and material costs.

Topics to be covered include:

- Roads and Walkways
- Structures and Built Features
- Recycled Content Materials
- Recycle Job Site Waste
- Irrigation Systems
- Controls
- Integrated Pest Management
- Natural Amendments
- Systems Commissioning & Tuneups

Course Reading Assignment: Reader

Student Project:

The objective of the project is to demonstrate a student's understanding and integration of the concepts covered in the program. Projects should focus on current and actual situations as much as possible and entail **a minimum of 40 hours** of individual work. Team projects are also encouraged and must reflect a total effort equivalent to the 40 hour minimum multiplied by the number of team members. Student projects will be due at the July and December class sessions or may be submitted for review prior to the end of the one-year program period. For additional information see "Student Project Guidelines" and Student Project Evaluation Form" at, www.sonoma.edu/sustainablelandscape website. Project categories include:

- Design
- Construction
- Policy
- Research
- Education
- Civic Engagement
- Product Development

Submission of a written project report of 8 – 12 pages in length is required. The required length does not include any drawings, photographs or appendices. A printed and electronic version of the report must be submitted.

Reading Materials:

There will be assigned readings for all class sessions and they will be drawn from the "Class Reader" and/or other books and articles. The "Class Reader" will be available from the Program Director and the cost will be approximately \$40-\$50.