

UNIVERSITY OF TENNESSEE | DEPARTMENT OF PLANT SCIENCES  
SUSTAINABLE LANDSCAPE DESIGN | PLSC 455/555 | ADVANCED LANDSCAPE  
CONSTRUCTION GREEN INFRASTRUCTURE THEORY AND APPLICATION



Image: Ayers Saint Gross

**PLSC 455/555 Advanced Landscape Construction Green Infrastructure Theory and Application  
Spring 2023**

**TR: 12:55-2:10**

**Environment and Landscape Lab (ELL) - Room 117**

**Course Credit Hours: 3**

**Faculty Contact Information**

Michael Ross, SITES AP, ASLA

Assistant Professor, Department of Plant Sciences

Environment and Landscape Lab 104

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(865) 974-1606

Office Hours: TR Afternoons upon request

**Welcome Statement:**

*This is exciting!* I want to welcome you to PLSC 455/555. We are building on the work you started in 280 and by now you know design is challenging, intellectually stimulating, and creative. You also know it is a lot of work but that you get the unique opportunity to track your progression, direct your production, stylize your presentation, and ultimately guide your future. As you know my job is to push you, challenge you, potentially frustrate you, and break down some of your previously held assumptions about the world around you, I want you to continue trust the process and know that I will be here to encourage you, to give you critical feedback, and to guide you on the path.

**Teaching Philosophy:**

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I believe that education should be fully inclusive, accessible, flexible in modality, and responsive to global need. I believe that knowledge acquisition is an active pursuit. I believe that education is empowering and that those of us fortunate enough to be able to pursue education have an obligation to our global community to use our knowledge to make a difference.

### Course Description:

An Overview of green infrastructure history, contemporary theory and application through study of design precedents. Detailed investigation into construction of sustainable landscape assemblies and management practices as a context for a focused design/ prototype/ build project.



Image: M Ross, M Roark, A Bonner – Third Creek Initiative

### Course Information:

PLSC 455/555 advances the centrality of landscape to the organization, function, and equity of urban and post-industrial/post-production landscapes and calls for radically different approaches to infrastructure and landscape construction. Embracing natural systems as models of functionality, form, and process; design and construction explorations employ, softness, porosity, and change over time as means of achieving high performance sustainable, equitable, and resilient landscapes.

The course emphasizes experiential learning through research, design and prototype development, collaborative problem solving, and supplemental service projects.

Sustainable landscape construction requires more than a vocational knowledge of technical specifications. Thoughtful consideration of environmental history, community health, social equity and justice, and ecosystem resilience will enhance our understanding of construction, the built environment, and its impact on landscape performance, natural resource management, and the experiential qualities of design.

### Course Structure Includes:

- Ecological systems, bioremediation, ecosystem services and the consequence of green

infrastructure

- Design of vegetative systems and specification of plant material
- Construction detail visualization, drawing, and exploration in relation to green infrastructural systems and their applications such as:
  - Topographic Systems
  - Vegetative Systems
  - Hardscape Systems
  - Stormwater Management Systems
  - Constructed and Floating Treatment Wetlands
  - Green Roofs and Walls
  - Pollution Mitigation
  - Biodiversity Enhancement
- Contemporary theory and context
- Application strategies
- Ethics, Social and Environmental Justice, Professional Responsibility
- Creation, implementation, interpretation, and analysis

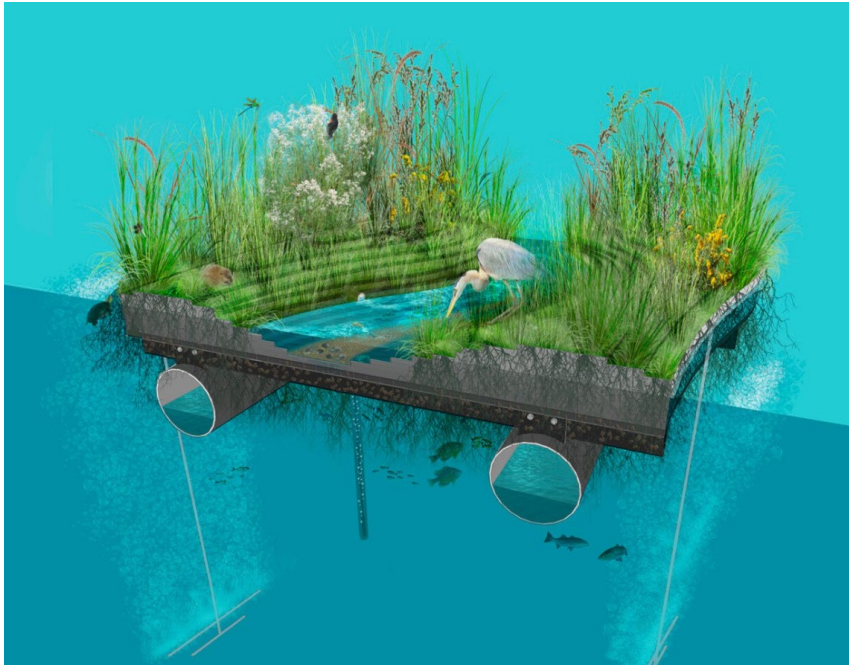


Image: Ayers Saint Gross

### Student Learning Outcomes/Objectives:

- To develop an understanding of contemporary theory and application related to green infrastructure and ecologically driven design.
- To familiarize with the breadth of green infrastructural materials and methods strategically employed in landscape construction and their associative properties that define how they are used and applied.
- To critically evaluate current building methods utilized within landscape systems.
- To define and recognize sustainable landscape construction best practices.

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- To learn professional practices including the sharing of ideas, working alone and in teams, and time management.
- To recognize and identify opportunities for modification and improvement in construction implementation in the built environment.
- To build upon knowledge acquired from previous course work and experience.
- To prepare students for the rigors of subsequent design courses.
- To advance dialogs related to professional ethics, environmental and social justice, and the responsibilities of contemporary built landscapes



Image: M. Ross

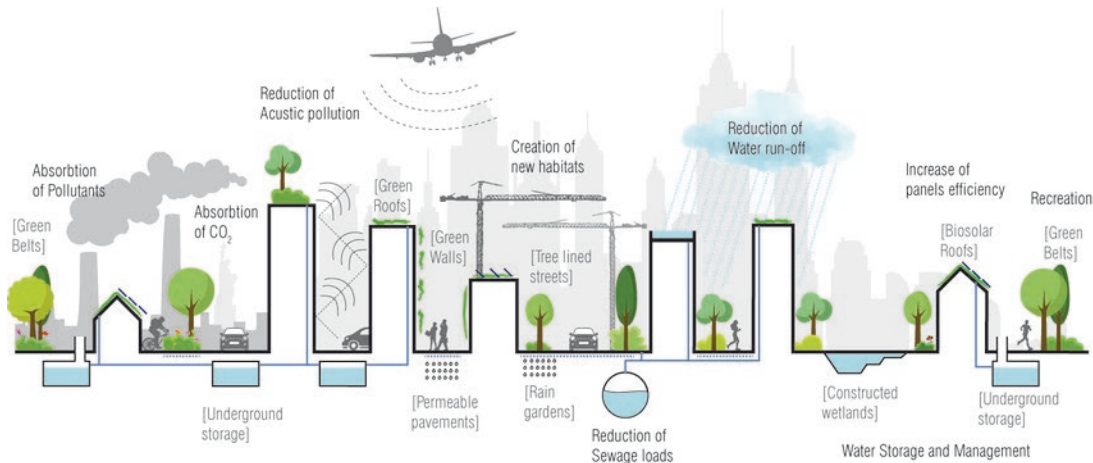


Image: [https://www.researchgate.net/figure/Ecosystem-Services-of-Urban-Green-Infrastructure-The-benefits-in-black-text-the\\_fig1\\_321331555](https://www.researchgate.net/figure/Ecosystem-Services-of-Urban-Green-Infrastructure-The-benefits-in-black-text-the_fig1_321331555)

### Graduate Students taking the PLSC 555:

In accordance with university policy, graduate students taking PLSC 555 are required to undertake additional assignments, additional readings, faculty led graduate student discussions, activities, individual and collaborative research and where constructive, additional assessments. The additional rigor is designed to enhance the graduate learning experience and advance the graduate student's scholarship.

<https://catalog.utk.edu/content.php?catoid=17&navoid=1763&hl=assistantship&returnto=search>

### Course Communications:

Interactions between the students and instructor, including submitting assignments, sharing course readings, and media content, will be facilitated through CANVAS. For technical issues, contact the OIT HelpDesk via phone (865) 974-9900 or online at <http://help.utk.edu/>.

### How to Be Successful in This Course:

#### Student's Responsibility

- Be prepared for all classes
- Be respectful to the professor
- Be respectful to classmates
- Actively contribute to the learning activities in class
- Abide by the UT Honor Code

#### Instructor's Responsibility

- Be prepared for all classes
- Evaluate all fairly and equally
- Be respectful of all students
- Create and facilitate meaningful learning activities
- Behave according to University codes of conduct

### Texts/Resources/Materials:

- Scale Bars (Engineering and Architecture)
- 12" roll trace paper
- Pens, pencils, paper for notes
- Dependable access to digital technology



*Tools of the trade*

### Required:

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*PHYTO Principles and Resources for Site Remediation and Landscape Design*, by Kennen and Kirkwood ISBN: 978-0-415-81415-7

Sustainable SITES Initiative *SITES v2 Rating System and Scorecard* available free:  
<https://www.usgbc.org/resources/sites-rating-system-and-scorecard>

**Highly Recommended:**

*Principles of Ecological Landscape Design*, by Travis Beck ISBN: 978-1597267021

*Living Systems Innovative Materials and Technologies for Landscape Architecture*, by Margolis and Robinson ISBN: 9783764377007

*Constructed Wetlands and Sustainable Development*, by Austin and Yu ISBN: 978-1-138-90899-4

**Recommended:**

*Sustainable Landscape Construction: A Guide to Green Building Outdoors*, by Sorvig and Thompson ISBN: 9781610918107

*Landscape Architecture Graphic Standards (Student Edition)*, by Leonard J. Hopper, ISBN-13: 978-0470067970

*Construction for Landscape Architecture*, by Holden and Liversedge ISBN: 9781856697088

<https://libguides.utk.edu/sustainablelandscapearchitecture>

Readings from selected texts will be made available to students enrolled in the course. Graduate students taking 555 will have additional reading and writing assignments beyond those required for undergraduates.

The screenshot shows the 'Sustainable Landscape Architecture' LibGuide page. At the top, it features the University of Tennessee Libraries logo and navigation links for 'My Account', 'Search', and 'Menu'. The page title is 'Sustainable Landscape Architecture' with a subtitle 'Resources for PLSC350, PLSC311, and LAR535 Students'. A search bar is present. On the left, a vertical navigation menu lists: Home, Sustainability, Ecological Design, Sustainable Construction, Drafting Standards, Construction & Material Standards, Professional Practice, and PLSC 280. The main content area includes: 1. 'Sustainable Landscape Architecture Guide' with a description of the guide's purpose. 2. 'Research tools' section listing Libkey Nomad, ZoteroBib, and Endnote/Zotero Citation Managers. 3. 'Other Helpful Libguides' section listing the 'Architecture and Design Subject Guide'. At the bottom left, there is a small image of a landscape and the text 'Agriculture & Natural Resources Librarian'.

Image: libguide

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Books to aid your process and studies

**Major Assignments and Exams**

Student Presentations – A comprehensive report on the characteristics, life cycle cost, benefits, limitations, and application of contemporary green infrastructural construction materials and strategies.

Landscape Performance Case Study Project – An interactive case study report of a sustainable local landscape documenting its performance benefits and operational characteristics.

Semester Project – Design and implementation of green infrastructure.

Formal Presentation of Design – A comprehensive written examination covering all course units.

**Course Requirements, Assessments and Evaluations:**

Grades will be assigned according to a point accumulation format. The grade scale will be based on the number of points accumulated as a percentage of the total possible. The following breakdown and grade scale will be used as a guide; however, circumstances may dictate slight revisions.

Point Breakdown:

Midterm .....	100 pts
Student Presentations.....	100 pts
Graduate Students Literature Synopsis .....	100 pts
Landscape Performance Case Study Project .....	100 pts
Graduate Students Landscape Performance Case Study Project (2) .....	200 pts

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Research/Design/Build Project .....	200 pts
Final Formal Presentation of Project.....	200 pts
Attendance, Participation and Respect .....	100 pts

Under graduate TOTAL 800 pts  
 Graduate TOTAL 1100 pts

**PLEASE NOTE:** I do not accept late work. Projects turned in after deadline will not be graded and will receive a 0 as a score.

**All assignments will be submitted as PDFs with the following naming:**

*PLSC####\_Project/Assignment#\_MMDDYYYY\_FirstNameLastName.pdf*

e.g. PLSC493\_Project01\_08292021\_HideoSasaki.pdf

**Students that do not use this naming convention will have 10 pts deducted from their submission grade**

Final Grade Scale:

94% or greater .....	A
90 – 93% .....	A-
87 – 89% .....	B+
84 – 86% .....	B
80 – 83% .....	B-
77 – 79% .....	C+
74 – 76% .....	C
70 – 73% .....	C-
67 – 69% .....	D+
64 – 66% .....	D
60 – 63% .....	D-
60% or lower .....	F

**‘A’ - Outstanding:** This student displays a mastery of the subject matter. All required work is complete and demonstrates a superior understanding of the issues and skills involved in the project and applies them appropriately. The individual consistently demonstrates initiative and inquiry and goes above and beyond instructor expectations. Assignment materials are superior in content and craftsmanship and communicates information clearly. The individual consistently participates and is actively engaged in the class.

**‘B’ - Good:** The quality of the student’s work and participation is above average, but lacks the thorough rigor of excellent work.

**‘C’ - Average:** The quality of the study’s work and participation work does not exceed expectations. The work is satisfactory, but does not display a mastery of the subject matter.

**‘D’ - Poor:** The basic expectations of each student have not been met. The work has obvious shortcomings. There is little effort put forth in the class, and no mastery of subject matter. Course may not be used to satisfy degree requirements.

**'F' - Failing:** Almost no effort has been put forth by the student demonstrated by both process and product. Course may not be used to satisfy degree requirements.

**Attendance Policy:**

Punctuality, attendance, active participation, and overall effort during the course is basic professional behavior, expected of all students, and is reflected in your final grade. All students begin the semester with an "A," 100/100 points, for attendance, participation and respect. Students will lose **10 points** from this score **for every absence**, which will be recorded through or for each gross tardy: more than 15 minutes late. **Students who are absent will be accountable for the day's lecture content.** They may contact the instructor or their classmates in order to acquire the necessary information.

Students who are observed to be disengaged from class, are not participating or otherwise disrespectful to the professor or their classmates will also have points deducted from their attendance grades.

**Course Feedback:**

Students are encouraged to provide the instructor with feedback over the course of the term using CANVAS, email, and other interactive means such as real-time, in-class polling.

**Academic Integrity:**

"An essential feature of the University of Tennessee, Knoxville is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the university, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity."

**University Civility Statement:**

Civility is genuine respect and regard for others: politeness, consideration, tact, good manners, graciousness, cordiality, affability, amiability and courteousness. Civility enhances academic freedom and integrity, and is a prerequisite to the free exchange of ideas and knowledge in the learning community. Our community consists of students, faculty, staff, alumni, and campus visitors. Community members affect each other's well-being and have a shared interest in creating and sustaining an environment where all community members and their points of view are valued and respected. Affirming the value of each member of the university community, the campus asks that all its members adhere to the principles of civility and community adopted by the campus: <http://civility.utk.edu/>.

**Disability Services:**

*"Any student who feels s/he may need an accommodation based on the impact of a disability should contact Student Disability Services in Dunford Hall, at 865-974-6087, or by video relay at, 865-622-6566, to coordinate reasonable academic accommodations.*

**Your Role in Improving Teaching and Learning Through Course Assessment:**

At UT, it is our collective responsibility to improve the state of teaching and learning. During the semester, you may be requested to assess aspects of this course either during class or at the completion of the class. You are encouraged to respond to these various forms of assessment as a means of continuing to improve the quality of the UT learning experience.

**Key Campus Resources for Students:**

- [Center for Career Development](#) (Career counseling and resources; HIRE-A-VOL job search system)
- [Course Catalogs](#) (Listing of academic programs, courses, and policies)
- [Hilltopics](#) (Campus and academic policies, procedures and standards of conduct)
- [OIT HelpDesk](#) (865) 974-9900
- [Schedule of Classes/Timetable](#)
- [Student Health Center](#) (visit the site for a list of services)
- [Student Success Center](#) (Academic support resources)
- [Undergraduate Academic Advising](#) (Advising resources, course requirements, and major guides)
- [University Libraries](#) (Access to library resources, databases, course reserves, and services)

This syllabus is subject to change. The most current course syllabus will be available within the Course Canvas site.

**Unusual circumstances may result in a change of teaching modality.**

***The instructor reserves the right to revise, alter or amend this syllabus as necessary.***



Image: RAMBOLL - Tanner Springs Park