CEE 5930/69300 – Green Infrastructure
11:50 to 2:50 -F
Distance Education Building Rm 012

Instructor: R. Ryan Dupont; 797-3227; email: rdupo@cc.usu.edu
Office: Engineering 215 or the UWRL 309
Office Hours: 12:00 to 3:00 pm, T; 12:00 to 2:00 pm R; or by appointment

Course Description: Green Infrastructure (aka blue-green infrastructure) uses natural systems and processes to provide multiple essential services and benefits to communities. More than a technology, green infrastructure is an *approach* to planning, design, engineering and construction of ecologically integrated human habitats. The logic of this approach is that human settlements are an inherent product of, and a part of, natural systems, and will function more efficiently for less cost, and be more resilient, healthy, prosperous and fulfilling if we turn to nature first in thinking about infrastructure. The approach of green infrastructure is unified by the following basic principles: 1) natural systems are integral to urban ecosystems; 2) green infrastructure should serve multiple purposes; 3) GI is the product of interdisciplinary collaboration; 4) GI generates unique outcomes adapted to place.

Green Infrastructure crosses traditional disciplinary boundaries and a wide range of spatial scales. It has strong bases in ecology, engineering, landscape architecture, and urban planning and design. The approach applies from a site to regional scales. Examples of green infrastructure include the suite of stormwater management practices often referred to as Low-Impact Development (LID), urban forests, stream and habitat preservation and restoration, urban greenways, urban agriculture, green streets, and watershed protection.

This course will explore the Policy, Planning, and Design aspects of Green Infrastructure implementation for Sustainable Communities through lectures, visiting professional guest lecturers, discussions, field trips, homework, and a group design project.

Grading: Homework, class and field trip participation, and a group project will be used to evaluate your grasp of the course material and concepts. Class grades will be determined based on the following:

	% of Grade
HOMEWORK	35%
CLASS AND FIELD TRIP PARTICIPATION	15%
CLASS GROUP PROJECT	50% (15% oral, 35% written)

Materials and Textbook: You are required to purchase the following textbooks:

Green Infrastructure: a Landscape Approach, Rouse and Bunster-Ossa. American Planning Association. Print version ISBN 978-1611900620.

Sustainable Infrastructure: The Guide to Green Engineering and Design, S.B. Sarté. John Wiley and Sons, Inc., 2010, Hoboken, NY. Print version ISBN 978-0-470-45361-2.

NOTE: Last day to "clean" drop CEE 5930/6930 is SEPTEMBER 18, 2017
FINAL GROUP PROJECT REPORTS are DUE at the FINAL (12/11/17)
FINAL GROUP ORAL PRESENTATIONS at the Final, 12/11/17 11:50 to 1:40
LAST DAY OF CLASS is 12/01/17

Environmental Engineering Class Syllabus Outcomes/Evaluation Matrix

Outcomes	**Homework**	**Exams**	**Lab Reports**	**Written Papers**	**Oral Presentations**	**Team Projects†**	**Other**
Knowledge of Basic Science & Engineering							
Knowledge of Env. Engineering Practice	Sustainable Infrastructure Design						
Advanced Knowledge of Env. Science & Engineering Principles	Integrated Green Infrastructure Design Approach				Integrated Green Infrastructure Design Approach	Integrated Green Infrastructure Design Approach	
Integration of Advanced Science & Engineering Principles	Design Stds, Design Tools, Social/Reg/ Political/ Ethical Design Issues				Design Stds, Design Tools, Economic/Social/ Regulatory/ Political/Ethical Design Constraints	Design Stds, Design Tools, Economic/ Social/ Regulatory/ Political/Ethical Design Constraints	
Experience in Written & Oral Communications					Oral Presentation Of Group Project	Written Group Project	
Experience in Design & Conduct of Experiments							

† Team GI project.

Objectives of CEE 5930/6930 in Context of New IDEA Course Evaluation System at Utah State University

IDEA Course Objectives

1. Gaining factual knowledge (terminology, classifications, methods, trends)
2. Learning fundamental principles, generalizations, or theories
3. *Learning to apply course materials (to improve rational thinking, problem solving and decisions)*
4. Developing specific skills, competencies and points of view needed by professionals in the field most closely related to this course
5. *Acquiring skills in working with others as a member of a team.*
6. Developing creative capacities (writing, inventing, designing, performing in art, music drama, etc.)
7. Gaining a broader understanding and appreciation of intellectual-cultural activity (music, science, literature, etc.)
8. Developing skills in expressing oneself orally or in writing
9. Learning how to find and use resources for answering questions or solving problems.
10. Developing a clearer understanding of, and commitment to, personal values.
11. Learning to analyze and critically evaluate ideas, arguments, and points of view.
12. Acquiring an interest in learning more by asking questions and seeking answers.

Bolded – Course Objectives Essential to Class Outcomes – Objectives 1 through 5
Bold Italic – Course Objectives Important to Class Outcomes – Objectives 9, 12
Plain– Course Objectives of Minor Importance to Class Outcomes – Objectives 6 to 8, 10, 11

SYLLABUS

DATE	Topic	Reading Assignment
8/25	*Introduction to Ecological Underpinnings of GI* *Dr. Sarah Hinners (optional, please review recording)*	*Handouts*
9/01	Sustainable Engineering Design Perspective on GI	S: Chapters 1&2
9/08	Landscape Architecture and GI Mark Morris, VOTA Planning & Design	Handouts R&B: Chapters 1 & 2
9/15	TERAKEE FARM SITE VISIT, Ogden, UT	Handouts
9/22	Open Space Planning and Conservation Development Sumner Swaner, Center for Green Infrastructure Design	Handouts
9/29	FIELD TRIP TO OGDEN RIVER RESTORATION PROJECT, Justin Anderson, Ogden City Engineer	Videos Handouts
10/06	Local Codes and Ordinances and Issues with GI/LID Implementation, Chris Thompson, Spanish Fork City Engineer	R&B: Chapter 4 Appendix A
10/13	EPA's National Stormwater Calculator	Handouts
10/19	**FRIDAY CLASSES ON THURSDAY** Water Sources, Water System Management, In-Class Water Balance Problem **FIELD TRIP - EXAMPLES OF IMPLEMENTATION OF LID AND GI ON CAMPUS**	S: Chapter 3
10/27	Student Debriefings on Local Community Field Trips GI & Community Health & Homelessness, Jeff Rose	Handouts
11/03	FIELD TRIP TO POWDER MOUNTAIN LID COMMUNITY	
11/10	Metrics for GI Implementation and Valuation Engineering Tools for GI/LID Design and Performance Assessment	R&B: Appendix A, Handouts
11/17	Stormwater Design Concepts and Applications in Arid Western Environments	Handouts
11/22-24	**THANKSGIVING HOLIDAY - NO CLASS**	
12/01	Project Presentations by UofU Students	

DATE	Topic	Reading Assignment
12/08	**NO Class, Dr. Dupont at EPA meeting SF, CA**	
12/11	**FINAL EXAM SCHEDULES – 11:50 TO 1:40** **FINAL GROUP PROJECT REPORTS AND PRESENTATIONS**	