

# ***Environmental* DESIGN**

architecture + landscape architecture + planning

**University of Calgary / Faculty of Environmental Design**

**Green Infrastructure/Winter City Design**

Winter 2019, PF 2140

Tuesdays (Lec.) and Thursdays (Lab.) 11-12:50

**EVDL 641 H(2-2)**

**Tawab Hlimi**

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PF 3190, office hours by appointment

## **Introduction**

An exploration of the concept of Green Infrastructure, via a historical/theoretical overview, and contemporary research, design methods, and practices, influencing future directions. Projects will explore relationships between urban ecological, sociocultural, and technological systems, with a focus on stormwater and transportation infrastructures, in the context of a winter city.

## **Objectives**

1. To acquire a foundational knowledge on the history and theory of the concept of green infrastructure, primarily through the lens of landscape architecture.
2. To become familiar with the expanding field of green infrastructure, through divergent disciplinary perspectives and emerging environmental challenges.
3. To develop an understanding of contemporary design methods and technologies in urban stormwater design and management through site-specific projects.
4. To explore the representation of dynamic relationships between 'flows' and 'forms'.
5. To situate the design of green infrastructure in the particularities of a winter city (Calgary).

## **Teaching Approach**

The course is divided into Lecture and Lab sections – Lecture sessions will cover design theory and methods/practice, complimented with readings and class discussion. Lab sections will be dedicated to project development with allocated time for field trips, independent work sessions, tutorials, critiques, reviews, and the occasional guest lecture. Students are expected to use class time productively.

## **Content: Topic Areas & Detailed Class Schedule**

### **Week 1 (Jan. 10)**

Thurs.

- Lecture 1: Course Introduction
- Assignment 1 Introduction

### **Week 2 (Jan. 15, 17)**

Tues.

- Lecture 2: The Green Infrastructure Concept

Thurs.

- Independent Work Session

### **Week 3 (Jan. 22, 24)**

Tues.

- Lecture 3: Historical Precedents to the Green Infrastructure Concept

Thurs.

- Independent Work Session

### **Week 4 (Jan. 29, 31)**

Tues.

- Assignment 1 Presentations

Thurs.

- Assignment 1 Presentations

### **Week 5 (Feb. 5, 7)**

Tues.

- Lecture 4: Low Impact Development and the Rational Method

- Assignment 2 Introduction

Thurs.

- Independent Work Session: Students to visit assigned sites.

### **Week 6 (Feb. 12,14)**

Tues.

- Lecture 5: Transportation

Thurs.

- Independent Work Session

### **Week 7: Mid-Term Break**

### **Week 8(Feb. 26,28)**

Tues.

- Lecture 6: Landscape Performance

Thurs.

- Independent Work Session

### **Week 9 (Mar. 5,7):**

Tues.

- Assignment 2 Presentations

Thurs.

- Assignment 2 Presentations

- Barkman Concrete Design Competition Introduction

### **Week 10: EVDS Block Week**

### **Week 11 (Mar. 19,21)**

Tues.

- Assignment 3 Introduction

- Lecture 7: Stormwater Pond and Swale Sizing

Thurs.

- Barkman Concrete Design Competition Deadline and Review

### **Week 12 (Mar. 26,28)**

Tues.

- Lecture 8: Public Works

Thurs.

- Independent Work Session

### **Week 13 (Apr. 2,4)**

Tues.

- Lecture 9: Energy and Climate Change

Thurs.

- Independent Work Session

### **Week 14 (Apr. 9)**

Thurs. (9am-12:50pm)

- Assignment 3 Presentations

## **Means of Evaluation**

The course evaluation will be based on the assignments completed during the term. Students are expected to be in attendance for the duration of each class. Late pinning up of work for reviews and/or late submission of work on D2L is not acceptable and will be subject to a deduction of one letter grade per late day. For example an A will be downgraded to an A-. Although work completed in a group or pair shall normally receive a common grade, the instructor reserves the right to evaluate students individually, if it appears that the work has been distributed unequally. Each component of the course must be completed and a passing grade of B- must be achieved on all assignments worth 20% or more in order to pass the course as a whole. There will be no final examination.

## **Evaluation Breakdown**

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Assignment 1	20%
Assignment 2	35%
Assignment 3	35%
Participation in Class Discussion of Lectures/Readings	10%
<b>Total</b>	<b>100%</b>

## **Grading Scale**

Assignments will be evaluated by letter grades. Final grades will be reported as letter grades, with the final grade calculated according to the 4-point range

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	95-100	Outstanding - evaluated by instructor
A	4.00	3.85-4.00	90-94.99	Excellent - superior performance showing comprehensive understanding of the subject matter
A-	3.70	3.50-3.84	85-89.99	Very good performance
B+	3.30	3.15-3.49	80-84.99	Good performance
B	3.00	2.85-3.14	75-79.99	Satisfactory performance
B-	2.70	2.50-2.84	70-74.99	Minimum pass for students in the Faculty of Graduate Studies
C+	2.30	2.15-2.49	65-69.99	All final grades below B- are indicative of failure at the graduate level and cannot be counted toward Faculty

				of Graduate Studies course requirements.
C	2.00	1.85-2.14	60-64.99	
C-	1.70	1.50-1.84	55-59.99	
D+	1.30	1.15-1.49	50-54.99	
D	1.00	0.50-1.14	45-49.99	
F	0.00	0-0.49	0-44.99	

Notes:

- A student who receives a "C+" or lower in any one course will be required to withdraw regardless of their grade point average (GPA) unless the program recommends otherwise. If the program permits the student to retake a failed course, the second grade will replace the initial grade in the calculation of the GPA, and both grades will appear on the transcript.

Students are expected to complete all course assignments on time. There will be no final exam. Students must obtain an overall passing grade to pass this course, however, if a student fails any phase of the course worth 20% or more they will fail the course. A student who feels that a piece of graded term work (term paper, essay, test, etc.) has been unfairly graded may have the paper re-graded. The student shall discuss the work with the instructor within **fifteen days** of being notified about the mark or of the item's return to the class. More information can be found in the Graduate Calendar: <http://www.ucalgary.ca/pubs/calendar/grad/current/gso.html>

## Readings

A complete reading list of electronic articles, available through the University of Calgary Library, will be posted on D2L, for each week of class. Some of the readings will be taken from the recommended textbooks listed below.

- Dramstad, Wench E, et al. *Landscape Ecology Principles in Landscape Architecture and Land Use Planning*. Harvard University Graduate School of Design & Island Press, 1996.
- Dunnett, Nigel, and James Hitchmough. *The dynamic landscape: design, ecology, and management of naturalistic urban planting*. Spon Press, 2004.
- Dunnett, Nigel, and Andy Clayden. *Rain gardens : managing water sustainably in the garden and designed landscape*. Timber Press, 2007.
- Echols, Stuart, and Eliza Pennypacker. *Artful Rainwater Design: Creative Ways to Manage Stormwater*. Island Press, 2015.
- McHarg, Ian. *Design with Nature*. Natural History Press, 1969.
- Reed, Chris, and Nina-Marie Lister. *Projective Ecologies*. Actar, 2014.
- Strom, Steven, et al. *Site Engineering for Landscape Architects*. Wiley.
- Waldheim, Charles, editor. *The Landscape Urbanism Reader*. Princeton Architectural Press. 2006.

Notes:

1. Written work, term assignments and other course related work may only be submitted by e-mail if prior permission to do so has been obtained from the course instructor. Submissions must come from an official University of Calgary (ucalgary) email account.
2. Academic Accommodations. Students who require an accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to their Instructor or the designated contact person in EVDS, Jennifer Taillefer ([jtaillef@ucalgary.ca](mailto:jtaillef@ucalgary.ca)). Students who require an accommodation unrelated to their coursework or the requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Vice-Provost (Student Experience). For additional information on support services and accommodations for students with disabilities, visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/)
3. Plagiarism - Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Most commonly plagiarism exists

when:(a) the work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work (this includes having another impersonate the student or otherwise substituting the work of another for one's own in an examination or test),(b) parts of the work are taken from another source without reference to the original author,(c) the whole work (e.g., an essay) is copied from another source, and/or,(d) a student submits or presents work in one course which has also been submitted in another course(although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved. While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted. Plagiarism is an extremely serious academic offence. It is recognized that clause (d) does not prevent a graduate student incorporating work previously done by him or her in a thesis. Any suspicion of plagiarism will be reported to the Dean, and dealt with as per the regulations in the University of Calgary Graduate Calendar.

4. Information regarding the Freedom of Information and Protection of Privacy Act (<http://www.ucalgary.ca/secretariat/privacy>) and how this impacts the receipt and delivery of course material
5. Emergency Evacuation/Assembly Points (<http://www.ucalgary.ca/emergencyplan/assemblypoints>)
6. Safewalk information (<http://www.ucalgary.ca/security/safewalk>)
7. Contact Info for: Student Union (<https://www.su.ucalgary.ca/contact>); Graduate Student representative(<http://www.ucalgary.ca/gsa/>) and Student Ombudsman's Office (<http://www.ucalgary.ca/ombuds/>).