Green Infrastructure/Winter City Design **EVDL 641 H(2-2)**
Winter 2017
Tuesday and Thursday 11:00-12:50

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Introduction

An introduction to the systems of urban and regional resource management through targeted green infrastructure projects, particularly in a winter city context. Provides background on historical and contemporary theoretical frameworks, current design methods, the state-of-the-art, and research and development that will shape future technologies.

Objectives

1. To acquire a foundational knowledge on the history and theory of green infrastructure, 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 develop representation skills in projecting "ecological" or systemic thinking through design drawings
5. To situate the design of green infrastructure in the particularities of a winter city

Teaching Approach

The course is divided into two sequences – green infrastructure theory and green infrastructure methods, and technology in the context of a winter city. The theoretical sequence, a critical review of frameworks is delivered through weekly lectures, readings, and class discussion, occurring on Tuesdays. The design methods and technology sequence is project based, and will include site visits, studio work sessions, critiques, and reviews, occurring on Thursdays. As indicated on the schedule, the design methods/technology sequence will include one design charrette with students at Langevin School, and two public open houses, which will double as design reviews. The open houses will occur outside of class time, and will substitute for class hours on the week of occurrence. Students should make arrangements to be present at open houses.

Content: Topic Areas & Detailed Class Schedule

1. **Week I (Jan. 10,12):**
   Jan 10 - Green Infrastructure Definitions

   Jan 12 - Winter City Design in Calgary

2. **Week 2 (Jan. 17,19):**
   Jan 17 - Scenery as Infrastructure: The Park Systems of Frederick Law Olmsted

   Jan 19 – Assignment 1 Work Session 1

3. **Week 3 (Jan. 24,26):**
   Jan 24 - Ecological/Physiographic Determinism: The Work of Ian McHarg

Jan 26 – Assignment 1 Work Session 2

4. **Week 4 (Jan. 31, Feb. 4):**
   Jan. 31 - Post-Industrialism: Accidental Ecologies and New Natures

   Feb 4 – Assignment 1 Work Session 3

5. **Week 5 (Feb. 7,9):**
   Feb. 7 - Ecological Democracy: Green Infrastructure for Social Justice

   Feb 9 - Participatory Design Charrette at Langevin

6. **Week 6 (Feb. 14,16):**
   Feb 14 - Landscape Performance

   Feb 16 – Assignment 1 Final Review

7. **Week 7: Block Week**

8. **Week 8(Mar. 2,4):**
   Mar 2 - The Industrial Eco-System: Landscape Machines

   Mar 4 – Assignment 2 Work Session 1

9. **Week 9 (Mar. 7,9):**
   Mar. 7 - Green Infrastructure Aesthetics

   March 9 – Open House at Langevin

10. **Week 10 (Mar. 14,16):**
    Mar. 14 - Green Infrastructure and Climate Change

    Mar. 16 – Assignment 2 Work Session 2

11. **Week 11 (Mar. 21,23):**
    Mar. 21 – Research Seminar

    March 23 – Assignment 2 Work Session 3

12. **Week 12 (Mar. 28,30):**
    Mar. 28 – Research Seminar

    March 30 – Assignment 2 Work Session 4

13. **Week 13 (Apr. 4,6):**
    Apr. 4 – Research Seminar

    April 6 – Assignment 2 Final Review at City Hall

14. **Week 14**
    Apr. 11 - Conclusion

Means of Evaluation

The course evaluation will be based on three assignments and participation in discussion of lectures and readings, below. There will be no final examination.

Assignment 1: Sunnyside: Ecological Infrastructure in the Winter City	40%
Assignment 2: Bridgeland Flyover: Transportation Infrastructure as Community Space	40%
Participation in Discussion of Lectures and Readings and Seminars	20%
Total	**100%**

Grading Scale

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.

Weekly 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 and assignment references will be taken from the recommended textbooks listed below.

Recommended Textbooks

Infrastructure Theory

- Beardsley, John, editor. *Designing Wildlife Habitats.* Dumbarton Oaks, 2013.
- Berger, Alan. *Reclaiming the American West*. Martien de Vletter SUN, 2009.
- Berger, Alan. *Systemic Design Can Change the World*. Martien de Vletter SUN, 2009.
- Corner, James and Alex S. Maclean. *Taking Measures Across the American Landscape*. Yale University Press, 1996.
- Czerniak, Julia, and George Hargreaves, editors. *Large Parks.* Princeton Architectural Press, 2007.
- Czerniak, Julia, editor. *Case: Downsview Park Toronto.* Prestel, 2001.
- Desvigne, Michel. *Intermediate Natures: The Landscapes of Michel Desvigne*. Birkhauser, 2009.
- Dramstad, Wench E, et al. *Landscape Ecology Principles in Landscape Architecture and Land-Use Planning.* Harvard University Graduate School of Design & Island Press, 1996.
- Forman, Richard T.T. *Road Ecology: Science and Solutions*. Island Press, 2003.
- Halprin, Lawrence. *The Sea Ranch...Diary of an Idea.* Spacemaker Press Inc., 2002.
- Hirsch, Alison Bick. *City Choreographer: Lawrence Halprin in Urban Renewal America*. University of Minnesota Press, 2014.
- Kirkwood, Niall, and Michael Hough, editors. *Manufactured Sites: Rethinking the Post-Industrial Landscape.* Taylor and Francis, 2003.
- McHarg, Ian. *Design with Nature.* Natural History Press, 1969.
- Reed, Chris, and Nina-Marie Lister. *Projective Ecologies*. Actar, 2014.
- Steiner, Frederick, R. *The Essential Ian McHarg: Writings on Design and Nature*. Island Press, 2006
- Waldheim, Charles, editor. *The Landscape Urbanism Reader*. Princeton Architectural Press. 2006.

Green Technologies & Winter City Design

- Dunnett, Nigel, and Noel Kingsbury. *Planting Green Roofs and Living Walls.* Timber Press, 2008.
- 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.

- Elemental Design Group. *Calgary: An Approach to Design for Winter.* University of Calgary, 1990.

- Elias, Peter Douglas. *From Grassland to Rockland: An Explorer's Guide to the Ecosystems of Southernmost Alberta.* Rocky Mountain Books, 1999.

- Kirkwood, Niall, and Kate Kennen. *Phyto: Principles and Resources for Site Remediation and Landscape Design*. Routledge, 2015.

- Strom, Steven, et al. *Site Engineering for Landscape Architects*. Wiley.

- Weiler, Susan K., and Katrin Scholz-Barth. *Green Roof Systems: A Guide to Planning, Design, and Construction of Landscapes over Structure.* Wiley, 2009.

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). 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/

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/).