

Environmental DESIGN

architecture + landscape architecture + planning

University of Calgary / Faculty of Environmental Design

Site Technology II: Construction and Materials

EVDL 605 H(2-2)

Instructor: George Harris

Winter 2018

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PF 4203, 8:30 - 10:50 or by appointment

Introduction

Provides a working knowledge of landscape construction methods and materials through practical application of theories and techniques via a design project.

This course is an introduction to the detailed design and construction of landscape features and structures. The course begins with a discussion of how contract documents are used to build projects. In particular, the role of specifications in producing quality work is presented. Throughout the course the construction methods and materials that are particular to traditional and contemporary practices of landscape architecture are discussed. Lectures provide a strong foundation in traditional and emerging materials and methods such as stone, wood, brick masonry, poured and pre-cast concrete, metal, glass, polymers and plant material. Sustainable practices of construction are presented throughout the course and include discussions about sustainable material selection, production methods, energy use, recycled materials, labor issues and related topics. Historical and contemporary landscape design case studies are presented throughout the term to illustrate specific technologies and to establish a basis for understanding materials and structures within the context of larger projects.

Students will be introduced to construction documents by using standard construction specifications as the template for learning about each specific material. The three sections of a standard specification; General, Products, and Execution will guide the learning process. Students will learn about construction drawings during the course including how to draw and label drawings.

Guest lectures by specialists will provide contemporary examples of the various materials used in today's practice. Field observation of construction materials and procedures will be scheduled based on the flexibility of student schedules and the opportunities presented by local construction schedules.

Objectives

The objectives are for students to develop skills and knowledge regarding the following:

- To understand how the materials and methods of construction in landscape architecture have changed over time, how they address contemporary issues, and future ones.
- To learn standard methods of technical drawing for detail design of landscape structures, systems and features.

- To learn the about the role of specifications in contract documents and how they can affect the quality of construction.
- To learn the fundamentals of conventional concrete, stone, brick, wood, metal, glass, and other materials and construction methods.
- To understand the relationship between landscape materials, construction techniques and design decisions through lectures, case study analysis and field observations.
- To learn the basic requirements for the design of landscape walls, screens, stairs, ramps, pavements and related structures.
- To integrate sustainable materials and practices into the design and construction of landscape structures.
- To explore emerging materials and methods such as polymers, textiles, green walls, green roofs and porous pavements.
- To develop a practical and critical approach to working in the rapidly changing contemporary construction industry.

Teaching Approach

The course will consist of a series of inter-related lectures, reading assignments, site visits, and assignments. Students will participate in class discussions and research, as well as problem solving assignments. Some in class work under the supervision of guest lecturers and the instructors will give the students hands on experience with contract document preparation.

Guest lecturers will present information on a number of specialized topics. Students will participate in at least one site visit but if possible additional site visits will be scheduled. At least one site visit will be scheduled during class time. Site visits outside of class time will be arranged to coordinate with student class schedules.

Content: Topic Areas & Detailed Class Schedule

The course will be organized around lectures on seven key building materials.

1. Stone
2. Wood
3. Concrete
4. Metals
5. Glass and Polymers
6. Earth/Turf
7. Plants

The information covered about each material will include the history of its use based on geography, the technical aspects of the material and how the material is used, and the contemporary use of the material.

Students will be required to develop a photo journal of materials and construction techniques throughout the course. For each construction material the students will prepare specifications and details that demonstrate their understanding of the topic.

Means of Evaluation

Evaluation will be based on a class presentation, preparation of a photo journal and the assignments, completed during the term. Class participation will include class discussions on specified topics and in class research and reporting. There will be no final examination. Assessment will be done based on the quality of work submitted.

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| 1. Assignment # 1 - History of a Material Presentation | 15% |
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- 2. Assignment # 2 - Photo-journal 15%
- 3. Assignment # 3 – Material Details and Specifications (Part A) 30%
 - 1. Option 1 – Details and specifications for a variety of features
 - a. Earth/Turf
 - b. Stone
 - c. Wood
 - 2. Option 2 – Sea container viewing deck
 - a. Schematic Design
- 4. Assignment # 4 – Material Details and Specifications (Part B) 40%
 - 1. Option 1 – Details and specifications for a variety of features
 - a. Concrete
 - b. Metals
 - c. Polymers
 - d. Brick
 - 2. Option 2 – Sea container viewing deck
 - a. Details and Specifications

Total 100%

Grading Scale

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

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 30% 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 (Recommended reference materials)

Holden, Robert, and Jamie Liversedge. 2011. *Construction for Landscape Architecture*. London, UK: Laurence King Publishing.

Hopper, Leonard J., 2007. *Landscape Architectural Graphic Standards, Student Edition*. Hoboken, NJ. Wiley.

Sass, Stephen L. *The Substance of Civilization*. New York: Arcade Publishing, 1998. See also 20110928. VitalBook file.

Special Budgetary Requirements

This course requires the use of computer aided design and drafting or graph paper, pens and scale rulers as well as other basic drafting supplies.

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/>).