Structures for Architects I
EVDA 613 H(1.5-0)
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403-283-5073
Fall 2012
Tues & Thurs PF 3160 11:00–12:20

Introduction

This course examines choices for structural systems, the variety of materials available, and begins to present the tools used to understand loading and equilibrium. The majority of coursework will focus on qualitative understanding of structural systems, with a brief introduction to the mathematics behind analysis. The intent is to provide students with sufficient background to begin appreciating the factors involved in choosing a structural system. Assignments do not cover the entire breadth of material covered in the course; however, they reflect the abilities required to make practical structure choices within an architectural context.

Objectives

- To demonstrate an ability to apply typical building loads to their supporting members
- To introduce the basic concepts of static equilibrium
- To learn the fundamentals of structural system choices
- To demonstrate an ability to integrate structural systems within architectural concepts

Teaching Approach

This course is divided into topic areas which are presented in terms of both theory and practical application. Topic areas are presented through lectures, discussions, case studies, and site visits. As site visits are considered to be an essential component of the course, **attendance at site visits is mandatory**. The final two assignments are focused on the integration of structural systems into the architectural concepts being developed in students' final Studio project.

Content

1) Structural Elements
    - Element types
    - Structural taxonomy
    - Framing arrangements
2) Loading and Equilibrium
    - Types of loading
    - Reactions
    - Stresses
    - Static Equilibrium
3) Structural Systems
    - Factors affecting system choice
    - Factors affecting material choice
    - Strategies for sizing
4) System Integration
    - Ways of integrating
    - Attitude toward structure

Means of Evaluation

The course evaluation will be based on the assignments completed during the term, which includes written assignments, visual presentation of work, and facilitating discussions. There will be no final examination.

Assignment 1: Loads and Reactions *15%*
Assigned Sept 13
Collected Sept 27

Assignment 2: Precedent Analysis *20%*
Assigned Sept 20
Collected Oct 4

Assignment 3: Primary System Choices *30%*
Assigned Oct 16
Collected Nov 8

Assignment 4: Systems Integration *35%*
Assigned Oct 16
Collected Dec 6

Note: A passing grade on Assignment 4 is required in order to pass the course as a whole.

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 percentage grades, with their letter grade equivalents as shown.

Grade	Grade Point Value	4-Point Range	Percent	Description
A+	4.00	4.00	92.5-100	Outstanding - evaluated by instructor
A	4.00	3.85-4.00	85-92.49	Excellent - superior performance showing comprehensive understanding of the subject matter
A-	3.70	3.50-3.84	80-84.99	Very good performance
B+	3.30	3.15-3.49	76-79.99	Good performance
B	3.00	2.85-3.14	73-75.99	Satisfactory performance
B-	2.70	2.50-2.84	70-72.99	Minimum pass for students in the Faculty of Graduate Studies
C+	2.30	2.15-2.49	66-69.99	All final grades below B- are indicative of failure atthe graduate level and cannot be counted toward Faculty

				of Graduate Studies course requirements.
C	2.00	1.85-2.14	63-65.99	
C-	1.70	1.50-1.84	60-62.99	
D+	1.30	1.15-1.49	56-59.99	
D	1.00	0.50-1.14	50-55.99	
F	0.00	0-0.49	0-49.99	

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.

Readings

The following books are suggested supplementary readings for the course, and are available from the EVDS section of the University of Calgary Book Store:

Ching, Francis D.K. Building Construction Illustrated, *2000*
Wiley Trade Publishing, ISBN: 0471358983

Gordon, J.E. The New Science of Strong Materials or Why You Don't Fall Through the Floor, 2001
Princeton University Press, ISBN: 069102308

Salvadori, Mario *Why Buildings Stand Up, 2002*
W.W. Norton, ISBN: 0393306763

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. It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237. (http://www.ucalgary.ca/drc/node/46) Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.

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 (http://www.su.ucalgary.ca/page/affordability-accessibility/contact); Graduate Student representative(http://www.ucalgary.ca/gsa/) and Student Ombudsman's Office (http://www.su.ucalgary.ca/page/quality-education/academic-services/student-rights).