UNIVERSITY OF UTAH
Department of Civil & Environmental Engineering

CVEEN 3210 Structural Loads and Analysis
Fall 2012

Instructor:
Luis Ibarra, luis.ibarra@utah.edu (801) 585-9307

Office hours:
Tuesday 2:00 PM – 4:00 PM, and Wed: 10:30 AM – 12:00 AM (Rm 2024, Bldg. 2000 MCE).

Teaching Assistant:
Sharad Dangol, sharad.dangol@utah.edu
Office hours: Monday 10:30 AM – 12:00 PM and Thursday 1:00 PM – 3:00 PM (Kiewit Room
        1135, Bldg. MCE).

Course Objectives:
The goal of structural analysis is to determine the effects of external loads on structures. At the
end of the course, you should be able to:
- Understand the fundamentals of structural loads.
- Calculate deflections of beams and trusses.
- Compute axial, shear, and moment forces on members of statically indeterminate
  structures.
- Use structural analysis software to analyze structural systems.

Prerequisites:
CVEEN 2140 (Strength of Materials) and MATH 2210 (Calculus III)

Textbook:
Hibbeler R.C. "Structural Analysis," 8th Edition. Editorial prentice Hall

Recommended material:
ASCE 7-10. "Minimum Design Loads for Buildings and Other Structures," American Society of
Civil Engineers ISBN: 9780784410851. You can obtain it from Chi Epsilon at a discounted
student rate ($85). Please contact Profr. Chambers: Janice.Chambers@utah.edu.

Leet, K.M., and Uang, C.M. "Fundamentals of Structural Analysis." Ed. McGraw Hill.

Exams
- First Midterm (Design loads and statically determinate structures): September 26th from
  7:30 to 8:20 am.
- Second Midterm (Statically determinate structural analysis and deformations):
  Wednesday November 7th from 7:30 to 8:20 am.
- Final exam (comprehensive with emphasis on statically indeterminate structures): Friday
  December 14th from 8:00 to 10:00 am

Only one quiz during the semester ☺… but it's this Wednesday ☻. To pass the course, you are required to (a) obtain more than 70 on the quiz, or (b) solve the "optional exercises" listed in HW1 and get more than 80 on this section of the HW.

Review Sessions
Two review sessions on statics and strength of materials will be offered by instructor or TA on:

- Friday August 24th from 2:00 to 4:00 pm (Layton Auditorium)
- Friday September 28th from 7:30 to 8:20 am (instead of regular class)

Two different tutorials on SAP2000 will be offered:
- Early September (TBD)
- Monday September 24th from 7:30 to 8:20 am (instead of regular class)

Lectures
For most lectures, handouts with blanks will be uploaded in Canvas before the topic is covered in the classroom.

Suggestion: Use a binder to place the material distributed during the semester

Homework
Homework will be assigned on weekly basis. HW is due at the start of the class of the due date (usually a week after it is assigned). Late HW will be graded for 80% credit. HWs cannot be submitted one week after the deadline.

Solutions will be distributed when the homework assignments are returned to the students.
In some HWs, you may form teams of two students.

For problems requiring a computer program you can use SAP2000, STAAD, RAM, or any program you are familiar with. If you use SAP2000 you can help from the instructor and TA.

This is a QI course and HWs are very important.

Canvas
Handouts, homework, and class electronic communication will be done in Canvas.

HOs with blanks will be uploaded in Canvas before the topic has been covered in the classroom.

Always use your university's email to contact the instructor and TAs.

Grade Weights
Homework	20%
First Midterm exam	25%
Second Midterm exam	25%
Final exam	30%

Grades

A- to A	90-100
B- to B+	80-89
C- to C+	70-79
D	60-69
E	<60

More grade information at:
http://www.law.utah.edu/student-handbook/grading-system/

Academic honesty:
The University of Utah rules of academic honesty apply to homework and exams (http://www.admin.utah.edu/ppmanual/8/8-10.html). Academic misconduct will be sanctioned as outlined therein.

Behavior in class:
Be respectful with the rest of the class.
Be sure to be in the classroom at the start of the class and do not leave earlier.
Cell phones are not allowed during the class.
Laptops are only allowed if we are discussing computer applications.

University Accommodation Policies:
The U of U seeks to provide equal access to services to people with disabilities. If you need accommodations in the class, you should notify the Center for Disability Services (581-5020, http://disability.utah.edu/). All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

CvEEN 3210 Content Overview

	Topic	Textbook Sections	Approx Sessions
1	Course content	-	1
2	Introduction to Structural Analysis/Quiz	1.1-1.2, App. B	1
Design Loads			
3	Dead and live Loads	1.1-1.3, 2.1	2
4	Snow Loads	1.3	2
5	Wind Loads	1.3	2
6	Seismic Loads	1.3	2
Statically Determinate Structural Analysis			
7	Stability and static determinacy[*]	2.2-2.4	-
8	Cables	5.1-5.3	2
9	Arches	5.4-5.6	1
10	Analysis of statically determinate trusses	2.2-2.4, 3.1-3.6, 3.8	2
11	Axial, shear and moment diagrams for beams	2.5, 4.1-4.3	2
12	Axial, shear and moment diagrams for frames	2.5, 4.4	2
13	Influence lines and highway loads	6.1-6.4, 6.6-6.8	3
Deformation of Beams and Trusses			
14	Double integration method	8.1-8.3	1
15	Moment area method	8.4	3
16	Virtual work method	9.1-9.4,9.7	2
Statically Indeterminate Structural Analysis			
17	Moment distribution method for beams	12.1-12.3	3
18	Moment distribution method for frames	12.4-12.5	3
19	Introduction to stiffness method	15.1-15.2	3
20	Approximate methods	7.3-7.4	2
* Stability and static determinacy is covered on truss, beam, and frame sections.			