University of Texas, Arlington
Department of Civil Engineering

CE 3341 - STRUCTURAL ANALYSIS
Fall 2012

Prerequisite: CE 2313 Mechanics of Material I or Equivalent

Instructor: Dr. Shih-Ho Chao

Office: NH, RM 407
Phone: 817-272-2550
shchao@uta.edu

Lectures: From August 23 to December 4: Tuesdays and Thursdays, 11:00 AM-12:20 PM
NH 229

Office Hrs:

- Tuesdays and Thursdays, 12:30 PM-1:30 PM.
- Questions via e-mail
- Or by appointment

Course Outline:

1. Introduction, Structural Analysis/Design Process, Structural Forms, and Basic Structural Elements
2. Loads, Reactions, Supports, Structural Idealization, and Free-Body Diagram
3. Statical Determinacy/Indeterminacy, Stability
4. Introduction of *RISA-2D* (and *RISA-3D*) Computer Program
5. Statically Determinate Trusses
6. Statically Determinate Beams and Frames
7. Shear and Moment Diagrams, Deflected Shape
8. Moving Loads, Influence Lines
9. Calculation of Deflections: Virtual Work Method
10. Analysis of Statically Indeterminate Beams, Truss, Frames, and Composite Structures; Moment Distribution Method

Teaching Assistant:

Brandon Price. brandon.price@mavs.uta.edu. Send email to make appointments for questions.

Office hours: Wednesdays from 11-12. RM: ELB 264

Computer Program:

RISA-2D/3D will be introduced and used extensively for the homework problems. An educational version of *RISA-2D* (as well as its general reference and user manual) can be downloaded from: http://www.risatech.com/p_risa2d.html (Make sure download the RISA-2D Educational Version not the demo version). *RISA-3D* has been installed in computers in NH 239. The user's manual can be found under one of the folders. Please contact Lewis Crow (lcrow@uta.edu) if you have any problem in running this program. The computer room has a card swipe lock. I will send the department the list of student names & 1000 numbers for MavExpress to give you the access.

Textbook:

Fundamentals of Structural Analysis, fourth edition by Leet, Uang, and Gilbert, McGraw-Hill., 2011.

Homework:

- Homework problems will be assigned each Tuesday (or Thursday) and are generally due on the following Tuesday (or Thursday). All homework will be counted towards the final grade.
- Homework will be collected at the beginning of class on the due date. A late homework loses 30% per day.
- Students are encouraged to see the TA and instructor about those assigned problems the student is having trouble with.
- Students are also encouraged to work in small groups to develop solutions to the problems but each student must write up his/her own homework. No credit will be given for homework copied or if your homework has been copied.

Term Project:

Topic of the term project and names in each group will be announced after the first mid-term exam. Final presentation of the term project is on Thursday December 4 and the report is due on the same day.

Examinations:

There will be two mid-term exams (in class) and a final examination (comprehensive exam). The exams are open book/notes but no computer program is allowed. All answers for the exam problems must be justified. It is important to get numerical answers within a reasonable accuracy (+ or -2%). Wrong numerical answers will not be assigned more than 80% of grade. Seats will be assigned for all exams.

Scheduled exam dates are:

First mid-term: October 9 (Tuesday), 11:00 AM-12:20 PM; NH 229
Second mid-term: November 20 (Tuesday), 11:00 AM-12:20 PM; NH 229
Final exam: December 11 (Tuesday), 11:00 AM-1:30 PM; NH 229

Make-up Exam Policy:

Makeup exams are given only in extreme circumstances; examples of extreme circumstances are serious illness of the student (doctor's note required) or death in the family. I must be contacted before the exam if such a circumstance applies to you.

Tested Explicitly (TE) Component

The Civil Engineering Department ABET procedure includes assessing the achievement of various departmental student learning outcomes (http://www.uta.edu/ce/accreditation.php). The procedure includes explicit testing (TE) of the achievement of the departmental student learning outcomes. CE3341 Structural Analysis is designated as one of the TE courses and will have explicit testing of the outcome (e) in the course. This will be achieved through explicit exam problems given to test student knowledge of the outcomes, reproduced below:

(e) an ability to identify, formulate, and solve engineering problems

One of the problems in each of the three exams (two mid-terms and final exam) will be designated as a TE problem for outcome (e). The total grade of these three problems is 100. A minimum grade of 70 will be deemed to signify that a student has passed the TE examination. Note that these TE problems will also be counted towards the final grade for this course.

Grading: The course grade will be based on:

15% - Homework
40% - Two mid-term exams
15% - Term project
30% - Final exam

100%

Final exam will not be returned, but may be reviewed by students.

The grade assigned to the student's numerical average will be as follows:

(a)	90 to 100 average	=	A
(b)	80 to 89.9 average	=	B
(c)	70 to 79.9 average	=	C
(d)	60 to 69.9 average	=	D
(e)	< 60 average	=	F

Student Learning Outcomes:

- Ability to apply knowledge of mathematics, physics, science, and engineering
- Ability to analyze and interpret data

- Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- Ability to function on multi-disciplinary teams
- Ability to identify, formulate, and solve engineering problems
- An understanding of professional and ethical responsibility
- Ability to communicate effectively the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- Recognition of the need for, and an ability to engage in life-long learning
- Knowledge of contemporary issues
- Ability to use the techniques, skills and modern engineering tools necessary for engineering practice

Americans with Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled Americans with Disabilities Act (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens. As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2).

Student Support Services Available:

The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit www.uta.edu/resources for more information.

Librarian to Contact:

Sylvia George-williams (Sylvia@uta.edu), Science & Engineering Librarian.

Electronic Communication Policy:

The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. Students are responsible for checking their MavMail regularly. Information about activating and using MavMail is available at http://www.uta.edu/oit/email/. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

To obtain your NetID or for logon assistance, visit https://webapps.uta.edu/oit/selfservice/. If you are unable to resolve your issue from the Self-Service website, contact the Helpdesk at helpdesk@uta.edu.

Note: I will be using email very often to send class handouts, homework assignments, and announcement; reply questions from students, etc. Please send me your preferred email address if you do not check UTA email.

Final Review Week:

A period of five university class days prior to the first day of final examinations is designated as Final Review Week. During this week, no new assignments will be given; however, previously assigned work may have a completion date during this week. In addition, no portion of the final examination shall be administered during the Final Review Week. Classes are held as scheduled during this week and materials covered in lectures during this week may be included in the final examination.

Grade Grievance Policy:

Grade grievances will be handled according to the policy described in the College of Engineering portion of the Catalog.