

CE 4322/5372: APPLICATIONS WITH GEOSYNTHETICS
Fall 2015

Instructor(s): Dr. Xinbao Yu, Ph.D., P.E., Assistant Professor

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Office Hours: Mon and Wed (1:00 to 3:00 PM). Other time with email appointment

Section Information: CE 4322-001, CE 5372-001, CE 5372-002

Time and Place of Class Meetings: NH 106, Tue and Thu 12:30-1:50 PM

Teaching Assistant:

Description of Course Content: Definitions and properties of geotextiles, geogrids, geonets, geocomposites and geomembranes; reinforcement design applications in rigid and flexible pavements, foundations, embankments, slopes and retaining walls; drainage and filtration application designs, AASHTO design criteria; construction methods. Credit not granted for both CE 5372 and 4322.

- Geosynthetics, Introduction, Types, Properties
- Geotextiles (Properties, Test Methods, Design for Separation, Pavement Reinforcement, Soil Reinforcement, Filtration and Drainage)
- Geogrids (Properties, Test Methods, Design for Pavement Reinforcement and Soil Reinforcement in Embankments)
- Geonets (Properties, Test Methods, Design for Drainage)
- Geomembranes (Properties, Test Methods)
- Other Geosynthetic Products and Their Applications

Student Learning Outcomes: To provide the students with an understanding of various geosynthetic products and their applications in civil engineering construction. Design applications (separation, filter, drainage, reinforcement in pavement systems, embankments, slopes, retaining walls, and foundations) will also be covered. After completion of this course, the following outcomes are expected.

<u>Student Outcomes</u>	<u>Extent of Coverage*</u>
(a), (k) an ability to apply knowledge of mathematics, science, and engineering; use software in the industry for design	C_E, T_E
(c),(f) an ability to design a geosynthetic structure to meet desired needs within realistic constraints such as economic, environmental, and sustainability	T_I, C_E
(e), (i) Ability to conduct independent and original studies, including gathering of information to propose, create, document the study and its resolution	T_I, C_I
(g) Ability to present scientific results in written and oral format	C_E
(h), (j) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	C_I, C_I

*Covered Implicitly (**C_I**): The outcome is implicitly covered

Covered Explicitly (**C_E**): The outcome is explicitly covered

Tested Implicitly (**T_I**): The outcome is covered and implicitly assessed for by one or more means (assignments, test questions, essay questions, presentation evaluations, lab reports, etc.)

Tested Explicitly (**T_E**): The outcome is explicitly assessed for by one or more means

Required Textbooks and Other Course Materials: Koerner, Robert M., Designing with Geosynthetics (5th Edition or 6th Edition, Vol.1), Prentice Hall.
Handouts and Papers, Class Power Point Presentations

Descriptions of major assignments and examinations: Two weeks of advance notice will be provided in scheduling the in-class mid-term exams. Tentative dates for the exams are last weeks of September, October and November (Just before dead week). One group class project is expected on topics covered in the class or consent of the professor.

Attendance: Class attendance and punctuality are expected. Anyone missing class for whatever reason is responsible for any class notes and announcements given in that class.

E-Culture Policy: The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at www.uta.edu/email. New students (first semester at UTA) are able to activate their email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.

Other Policies:

Cell phones and laptop computers should be turned off during the class.

Grading: For CE 4322 students, the weightage will be based on: Assignments (15%), three term examinations (20% + 25% + 25%) and one design project (15%).

For CE 5372 students, the following breakup will be used to determine the final score: Assignments (10%), three term examinations (20% + 25% + 25%), and one case study term paper and individual presentation (20%).

The class grade for both will be based on the following percentages of final score:

90 - 100%	A
80 - 90%	B
70 - 80%	C
60 - 70%	D and
< 60%	F

Make-up Exams: A make-up examination may be given only if a regular examination is missed for a justifiable reason. Submit a written request within one week after a scheduled examination is missed.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 6 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc.

Grade Grievances: Any appeal of a grade in this course must follow the procedures and deadlines for grade-related grievances as published in the current University Catalog.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for**

non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Class notes, assignments, and announcements are made available in Blackboard. Students are responsible to check the class on blackboard regularly.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, [which is located in the east main entrance](#). When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: UT 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. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at www.uta.edu/resources.

Writing Center: The Writing Center, 411 Central Library, offers individual 40 minute sessions to review assignments, *Quick Hits* (5-10 minute quick answers to questions), and workshops on grammar and specific writing projects. Visit <https://uta.mywconline.com/> to register and make appointments. For hours, information about the writing workshops we offer, scheduling a classroom visit, and descriptions of the services we offer undergraduates, graduate students, and faculty members, please visit our website at www.uta.edu/owl/.

Librarian to Contact: Sylvia George-Williams, Science and Technology Library, sylvia@uta.edu, (817)2727519.

Syllabus Change Policy: This syllabus is subject to change with advance notice.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911.
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Course Schedule

Date	Lecture	Content
8/21/2014	1	Introduction
8/26/2014	2	Geosynthetics applications
8/28/2014	3	Geosynthetics Properties
9/2/2014	4	Geosynthetics Properties
9/4/2014	5	Geosynthetics Properties
9/9/2014	6	Design Methods
9/11/2014	7	Design by Functions
9/16/2014	8	Pavement Design
9/18/2014	9	Pavement Design
9/23/2014	10	Pavement Design
9/25/2014	11	Pavement Design
9/30/2014	12	Exam 1
10/2/2014	13	Drainage Design
10/7/2014	14	Drainage Design
10/9/2014	15	Filter Design
10/14/2014	16	Slope Stability Basics
10/16/2014	17	Slope Stability Basics
10/21/2014	18	Reinforced Slope
10/23/2014	19	Jewell Design Method
10/28/2014	20	Earth Pressure and Retaining wall
10/30/2014	21	Exam II
11/4/2014	22	Retaining Wall Basics
11/6/2014	23	Reinforced Retaining Wall
11/11/2014	24	Reinforced Retaining Wall
11/13/2014	25	Reinforced Retaining Wall
11/18/2014	26	MSE Wall Practice
11/20/2014	27	Exam III
11/25/2014	28	Project Presentation
11/27/2014	holiday	
12/2/2014	29	Project Presentation

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Xinbao Yu.