UNIVERSITY OF TEXAS AT DALLAS
COURSE SYLLABUS

COURSE INFORMATION:

Course Number: SE 3306, Section 0U1 (Tuesday/Thursday 10:00am-12:15pm)

Course Title: Mathematical Foundations of Software Engineering

Credit Hours: 3

Term: Summer 2017

PROFESSOR CONTACT INFORMATION:

Name: Greg Ozbirn

Phone Number: 972-883-4725

Office Location: ECSS 3.608

Office Hours: 5:30 pm – 6:30 pm, TR

Email Address: ozbirn@utdallas.edu

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COURSE PRE-REQUISITES, CO-REQUISITES, AND/OR OTHER RESTRICTIONS:

Prerequisites: (CE 2305 or CS 2305 or TE 2305) with a grade of C or better or equivalent.

COURSE DESCRIPTION:

Boolean logic, first-order logic, models of first-order logic. Introduction to program verification, applications in software engineering. Completeness Theorem. Regular expressions, regular sets, finite-state machines, and applications in software engineering. Graph Theory, graph algorithms. Statecharts, Petri Nets and their role in software engineering.

STUDENT LEARNING OBJECTIVES/OUTCOMES

1. Ability to understand logic; propositional logic; predicate logic; logical equivalences
2. Ability to understand and construct proofs; direct proofs, proof by contradiction; proof by math induction
3. Ability to understand set theory
4. Ability to understand and use graph theory; complete graphs; bipartite graphs; graph isomorphism; Euler graphs; Hamilton graphs; shortest path algorithms; planar graphs
5. Ability to understand and use regular expressions/grammars/languages
6. Ability to understand and use finite state automata and finite state machines

REQUIRED TEXTBOOKS AND MATERIALS:

Discrete Mathematics and Its Applications, (7th Edition), by Kenneth Rosen, Published by McGraw-Hill, 2012, ISBN: 9780073383095

SUGGESTED COURSE MATERIALS

Extra material may be posted on eLearning.

ASSIGNMENTS & ACADEMIC CALENDAR

Class	Date	Material Covered	Topic
1,2	May 30, Jun 1	Intro., Chapter 1	Logic
3,4	Jun 6, 8	Chapter 2	Sets
5,6	Jun 13, 15	Chapter 4	Number Theory
7,8	Jun 20, 22	Chapter 9	Relations
9,10	Jun 27, 29	Review, **Exam I**	
11	Jul 4*, 6	Holiday*, Chapter 10	Graphs
12,13	Jul 11, 13	Chapter 10	
14,15	Jul 18, 20	Chapter 11	Trees
16,17	Jul 25, 27	Chapter 13	Computation
18,19	Aug 1, 3	(Not in book)	Petri nets, Statecharts
20,21	Aug 8, 10	Review, **Exam II**	

GRADING POLICY:

The grade will be determined as described below. The lowest assignment score and the lowest quiz score are dropped. No other bonus work, make-up work, dropped scores, or other means of raising your grade should be expected. At the end of the semester, it is possible that grades may be curved, but a curve should not be expected.

Exam 1	30%
Exam 2	30%
Assignments	30%
Quizzes, in-class work	10%

Letter grades are determined using the standard 10-point range for each letter, then dividing this range into three equal parts to determine the +/- designation.

COURSE & INSTRUCTOR POLICIES:

Assignments must be turned in on time. Each hour late will result in a deduction of 10 points. It is your responsibility to upload your work early enough to avoid possible problems uploading to eLearning. It is your responsibility to ensure that you have submitted the correct items. It is recommended that you double-check your submission to ensure it is correct.

Exams must be taken on time. Exceptions require advance approval by the instructor. It is up to the instructor to determine whether an exception will be made, and will depend largely on proof of extraordinary circumstances. Otherwise, a missed exam will either incur a substantial penalty or be recorded as a zero.

Exams have time limits. Students who continue to write on the exam after time is called or who start writing before the exam begins are subject to a penalty.

Students are expected to attend all class lectures. If absent, the student is still responsible for any material covered or anything said which the student missed.

All assignments, quizzes and exams are to be individual efforts. You are not to collaborate with other students, or to discuss solutions with other students prior to submission. Copying of assignments, quizzes and exams, in whole or in part, from other students in this semester or previous semesters will be considered to be an act of scholastic dishonesty.

Grades are not based on needs or consequences, but are based only on performance.

UT DALLAS SYLLABUS POLICIES AND PROCEDURES

The information found at the link below constitutes the University's policies and procedures:

http://go.utdallas.edu/syllabus-policies

These descriptions and timelines are subject to change at the discretion of the Professor.

Syllabus Addendum

Each student in this course is expected to exercise independent scholarly thought, expression and aptitude. This addendum to the course syllabus is provided to assist you in developing and maintaining academic integrity while seeking scholastic success.

General Comments:

- All academic exercises (including assignments, essays, laboratory experiments and reports, examinations, etc.) require individual, independent work. Any exception(s) will be clearly identified.
- Be sure your name or identifying number is on your paper.
- Complete and turn in academic exercises on time and in the required format (hardcopy, electronic, etc.).
- Retain confirmation of document delivery if submitted electronically.
- Retain all research notes and drafts until the project or assignment has been graded.
- Obtain written authorization from your instructor prior to submitting a portion of academic work previously submitted for any academic exercise. (This includes an individual or group project submitted for another course or at another school.)

Essays and Significant Papers:

Be prepared

- To present periodic drafts of work in process
- To correctly and completely reference all sources of information using the citation format prescribed
- To turn your completed assignment in timely and in the prescribed manner (electronic, hardcopy, etc.)

Examinations:

Be prepared

- To leave all personal belonging at the front of the room or other designated location (this includes cell phones, turned off of course, and beverage containers)
- To present your UTD Comet Card
- To remove your cap or hat
- To remove the batteries from any electronic device (e.g. calculator)
- To exchange blue books or bring them early as required
- To change seating
- To sign out when exiting the testing room
- To be escorted for lavatory use

All episodes of suspected scholastic dishonesty will be reported according to University policy. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such

dishonesty harms the individual, all students and the University, policies on scholastic dishonesty will be strictly enforced. Penalties that may be assessed for scholastic dishonesty may be reviewed in *Subchapter D. Penalties* at http://www.utdallas.edu/student/slife/chapter49.html.