ENGR3300.005 Advanced Engineering Mathematics
Spring 2019
Classes: F 10:00am-12:45pm   Room: ECSW 3.210
Lab: W 7:00pm-7:50pm   Room: ECSS 2.311

Instructor Contact Information
Dr. Ricardo Saad
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Office hours: Fridays, 8:45 am-9:45 am or by appointment

TAs Contact Information
Ms. Azadeh Samadian   azadeh@utdallas.edu
Office Hours: Monday and Thursdays: 10:00 am – 11:00 am ECSN 3.520.

Mr. Serkan Tokgoz   serkan.tokgoz@utdallas.edu
Office Hours: Mondays, 1:00 pm – 2:00 pm Room: ECSN 4.218
Problem sessions: Tuesdays, 7:00 pm – 8:30 pm Room: ECSN 2.110.

Course Pre-requisites, Co-requisites, and/or Other Restrictions
Prerequisites: (MATH 2415 or MATH 2419) and ENGR 2300 Co-requisite: MATH 2420.

Course Description
Survey of advanced mathematics topics needed in the study of engineering. Topics include use of complex numbers, properties of complex-valued functions, scalar and vector fields, introduction to partial differential equations, and Fourier series. Examples are provided from electromagnetics, fluid mechanics, thermodynamics, and engineered systems. This course includes a required laboratory.

Student Learning Objectives/Outcomes
1. Demonstrate the ability to solve advanced engineering problems formulated in physical space and time
2. Demonstrate the ability to solve advanced engineering problems formulated in frequency space and the complex domain.
3. Demonstrate the ability to formulate an engineering problem in terms of advanced engineering mathematics."
4. Demonstrate the ability to use automatic computation to evaluate the solutions to problems in advanced engineering mathematics."

Required Textbooks and Materials
1. Erwin Kreyszig, *Advanced Engineering Mathematics*, 10th Edition (Wiley, 2011).
2. Class-notes will be posted in eLearning. Students must have access to eLearning.

Assignments & Academic Calendar

1.0	Review: Vector Operations	Class Notes 1	Sections 9.1, 9.2 and 9.3
2.0	Cylindircal and Spherical Coordinates	Class Notes 2	
3.0	Line Integrals: Length, Mass, Work	Class Notes 3,4	Sections 9.4, 9.5, 10.1
4.0	Operators	Class Notes 5	Section 9.7, 9.8, 9.9
5.0	Triple Integrals in Cylindrical and Spherical Coordinates	Class Notes 6	
6.0	Surface Integrals: Area, Mass, Flux	Class Notes 7	Sections 10.5, 10.6
7.0	Divergence and Stokes' Theorems	Class Notes 8, 9	Sections 10.7, 10.8, 10.9
8.0	Fourier Analysis	Class Notes 10	Sections 11.1, 11.2,
9.0	Partial Differential Equations	Class Notes 11, 12	Section 12.1, 12.2, 12.3, 12.5
10.0	Complex Numbers	Class Notes 13	Section 13.1, 13.2
11	Complex Analysis	Class Notes 14	Chapter 13, 14, 15, 16.
11.1	Analytic Function		Sections 13.3, 13.4
11.2	Complex Integration		Section 14.1, 14.2, 14.3, 14.4
11.3	Power Series		Sections 15.1, 15.2, 15.3,15.4
11.4	Laurent Series		Sections 16.1, 16.2, 16.3,

Grading Policy

Quiz 1	10%	Date: February 8th
Exam 1:	20%	Date: February 22th
Quiz 2	10%	Date: March 15th
Exam 2:	20%	Date: April 5th
Quiz 3	10%	Date: April 19th
Exam 3:	20%	Date: May 3rd
Assignments:	5%	
Labs	5%	

Please note that all dates for exams and quizzes are tentative. The instructor reserves the right to change the dates of exams or quizzes at his discretion. Any changes in the exam or quiz schedule will be announced in eLearning.

Grades are final one week after the grades are given in class or posted in eLearning, whatever happens first. There will be no grade review after this period.

- Class and Lab attendance is mandatory. You are allowed to have 2 absences for labs and 2 absences for classes. Other absences may take points from final course grade at the instructor's discretion
- Assignments have to be submitted in **Engineering Paper.**

Course & Instructor Policies

Homework problems will be assigned weekly. **Late homework will not be accepted.**

Homework will be due at the beginning of the each lab session.

No exam grades will be dropped. Make-up exams will be given only in very special circumstances and at the discretion of the instructor.

Problem sessions are offered in weekly basis by of the TAs of the course.

Classroom Citizenship: General good behavior with **cell phones silenced** required. **Questions are encouraged!**

Off-campus Instruction and Course Activities

There will be no off-campus activities for this course

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Instructor