Math 251 Syllabus

Course title and number	MATH 251 – Engineering Mathematics III
	Sections 501, 513
Term	Fall 2019
Class times and location	Lecture for 501: MWF 8:00-8:50 AM HELD109
	Lecture for 513: MWF 9:10-10:00 AM HELD 109

INSTRUCTOR INFORMATION

Name	Igor Zelenko
Course Webpage	https://www.math.tamu.edu/~zelenko/Fall19_M251.html
	Check regularly for announcements and important information, including lecture notes, suggested homework, exam information , and other helpful links.
Email address	zelenko@math.tamu.edu
	Check your TAMU email account **daily**, because this is where class emails will be sent.
Office	Blocker 601J
Office hours	Monday and Friday 11am-noon, Wednesday 3-4pm or by appointment in my office

COURSE DESCRIPTION AND PREREQUISITES

Description: (Credit 3) Vector in tree dimensional space, elements of analytic geometry, differential calculus of functions of several variables, integration in R^2 and R^3, line and surface integrals, conservative vector fields, Green's, Stokes', and Divergence theorems.

Prerequisites: Math 152 or equivalent.

Calculator Policy: Calculators are not allowed on exams, however may be needed for homework.

LEARNING OUTCOMES

We will cover chapter 12 to chapter 16 of the book. We will generalize notations already seen in two dimensional calculus to three dimensional space as vectors and we will cover different concepts used in physics, engineering and electronics. At the end of this course, students should be able to manipulate these concepts correctly in order to apply techniques seen in this course to engineering applications. In particular, students should be able to:

●	Perform Calculus operations on vector-valued functions, including derivatives, integrals, curvature, displacement, velocity, acceleration, and torsion.
●	Perform calculus operations on functions of several variables, including partial derivatives, directional derivatives, and multiple integrals.
●	Find extrema and tangent planes.
●	Solve problems using the Fundamental Theorem of Line Integrals, Green's Theorem, The Divergence Theorem, and Stokes' Theorem.
●	Apply the computational and conceptual principles of calculus to the solutions of real-world problems.

Textbook*: Stewart, Calculus: 8*[th] *Edition Early Transcendentals*

The course grading will be based on the tables below. Due to FERPA privacy issues, I cannot discuss grades over email or phone. If you have a question about your grade, please come see me in person.

- **Grade Breakdown**

Activity	Date	Percent
Homework (webassign)	Weekly	5%
Quizzes	Quizzes	15%
Exam I	~Week 4	20%
Exam II	~Week 8	20%
Exam III	~Week 12	20%
Final Exam	See dates below	20%
TOTAL		100%

- **Grading Scale**

Range	Grade
90 ≤ Average ≤ 100	A
80 ≤ Average < 90	B
67≤ Average < 80	C
57 ≤ Average < 67	D
Average < 57	F

Attendance and Makeup policies

ꝋ   **Excused absences**: The University views class attendance as an individual student responsibility. It is essential that students attend class and complete all assignments to succeed in the course. University student rules concerning excused and unexcused absences as well as makeups can be found at http://student-rules.tamu.edu/rule07. In particular, make-up exams will NOT be allowed unless a **University approved reason is given to me in writing**. Notification *before* the absence is **required** when possible. Otherwise, you must notify me **within 2 working days** of the missed exam to arrange a makeup. In all cases where an exam is missed due to an injury or illness, whether it be more or less than 3 days, **I require a doctor's note**. Further, an absence due to a non-acute medical service or appointment (such as a regular checkup) is *not* an excused absence. Providing a fake or falsified doctor's note or other falsified documentation is considered academic dishonesty, will be reported to the Aggie Honor Council, and will result in an F* in the course.

ꝋ   **Makeup** exams will only be allowed provided the above guidelines are met. You will be allowed to make up a missed exam during one of the scheduled makeup times provided by the Math Department. According to Student Rule 7, you are expected to attend the scheduled makeup unless you have a University-approved excuse for missing the makeup time as well. If there are multiple makeup exam times, you must attend the *earliest* makeup time for which you do not have a University-approved excuse. The list of makeup times will be available at http://www.math.tamu.edu/courses/makeupexams.html. If a quiz is missed for a University excused absence, make arrangements with me the day the quiz is missed to schedule a make up .

ADDITIONAL COURSE INFORMATION AND POLICIES

Exams: There will be 3 exams and a final exam administered. Bring your Texas A&M student ID and a pencil to all exams. The *tentative* dates for the exams are as follows. Exam dates will be announced the previous week.

Exam 1:   **~Week 4**
Exam 2:   **~Week 8**
Exam 3:   **~Week 12**
Final Exam: **501: Friday Dec 6, 10:00 a.m.- 12:00 p.m. (noon)**
                513: Monday Dec 9 12, 8:00 - 10:00 a.m.

<u>Note:</u>   If the score on your final exam is higher than your lowest exam score, then the score on the final exam will replace that score in the course grade calculation.

Graded Homework: Online graded homework assignments will be due each Thursday, 11:55 pm, using WebAssign. Here is where you can find more information on your purchasing options using Webassign or Cengage Unlimited: http://www.math.tamu.edu/courses/eHomework.

Suggested Homework: On my webpage there will be a list of suggested homework. I STRONGLY suggest that you do these problems for more practice in addition to the online homework. These will not be collected for a grade.

Quizzes: Quizzes will be administered every Monday , last 10 minures of the class, on the material of the previous week. These quizzes will be closed note. Therefore it is very important you keep your notes up to date and organized.

Grade Appeals: If you believe an error has been made in grading, you have until the next class period after the exam is handed back to let me know. Otherwise, you must accept the grade you received.

Classroom Respect: Please refrain from using electronic devices during class, as doing so distracts not only you, but also those around you. You must attend the class you are registered for unless you have cleared it with me first.

Copyright: All printed handouts and web-materials are protected by US Copyright Laws. No multiple copies can be made without written permission by the instructor.

Additional Helpful Links:

⌐ㅅ	Help Sessions	http://www.math.tamu.edu/courses/helpsessions.html
⌐ㅅ	Week in review by Dr. Shatalov	
⌐ㅅ	of Spring 2014	https://www.math.tamu.edu/~shatalov/251_WIR_S14.html
⌐ㅅ	Academic Calendar	http://registrar.tamu.edu/General/Calendar.aspx
⌐ㅅ	Final Exam Schedule	http://registrar.tamu.edu/General/FinalSchedule.aspx

ACADEMIC INTEGRITY
Cheating and other forms of academic dishonesty **will not** be tolerated. Please do not compromise your integrity for the sake of temporary benefits.

Aggie Honor Code: "An Aggie does not lie, cheat, or steal, or tolerate those who do."

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System.
For additional information please visit: http://aggiehonor.tamu.edu

Americans with Disability Act: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

TITLE IX AND STATEMENT ON LIMITS TO CONFIDENTIALITY

TEXAS A&M UNIVERSITY AND THE COLLEGE OF SCIENCE ARE COMMITTED TO FOSTERING A LEARNING ENVIRONMENT THAT

IS SAFE AND PRODUCTIVE FOR ALL. UNIVERSITY POLICIES AND FEDERAL AND STATE LAWS PROVIDE GUIDANCE FOR ACHIEVING SUCH AN ENVIRONMENT. ALTHOUGH CLASS MATERIALS ARE GENERALLY CONSIDERED CONFIDENTIAL PURSUANT TO STUDENT RECORD POLICIES AND LAWS, UNIVERSITY EMPLOYEES — INCLUDING INSTRUCTORS — CANNOT MAINTAIN CONFIDENTIALITY WHEN IT CONFLICTS WITH THEIR RESPONSIBILITY TO REPORT CERTAIN ISSUES THAT JEOPARDIZE THE HEALTH AND SAFETY OF OUR COMMUNITY. AS THE INSTRUCTOR, I MUST REPORT (PER TEXAS A&M SYSTEM REGULATION 08.01.01) THE FOLLOWING INFORMATION TO OTHER UNIVERSITY OFFICES IF YOU SHARE IT WITH ME, EVEN IF YOU DO NOT WANT THE DISCLOSED INFORMATION TO BE SHARED:

• ALLEGATIONS OF SEXUAL ASSAULT, SEXUAL DISCRIMINATION, OR SEXUAL HARASSMENT WHEN THEY INVOLVE TAMU STUDENTS, FACULTY, OR STAFF, OR THIRD PARTIES VISITING CAMPUS.

THESE REPORTS MAY TRIGGER CONTACT FROM A CAMPUS OFFICIAL WHO WILL WANT TO TALK WITH YOU ABOUT THE INCIDENT THAT YOU HAVE SHARED. IN MANY CASES, IT WILL BE YOUR DECISION WHETHER OR NOT YOU WISH TO SPEAK WITH THAT INDIVIDUAL. IF YOU WOULD LIKE TO TALK ABOUT THESE EVENTS IN A MORE CONFIDENTIAL SETTING, YOU ARE ENCOURAGED TO MAKE AN APPOINTMENT WITH THE STUDENT COUNSELING SERVICE (HTTPS://SCS.TAMU.EDU/ [SCS.TAMU.EDU]).

STUDENTS AND FACULTY CAN REPORT NON-EMERGENCY BEHAVIOR THAT CAUSES THEM TO BE CONCERNED AT HTTP://TELLSOMEBODY.TAMU.EDU [TELLSOMEBODY.TAMU.EDU].

COURSE TOPICS

SEC	TOPIC
12.1	Three Dimensional Coordinate System
12.2	Vectors
12.3	The Dot Product
12.4	The Cross Product
12.5	Equations of Lines and Planes
12.6	Cylinders and Quadric
13.1	Vector Functions and Space Curves
13.2	Derivatives and Integrals of vector-valued functions
13.3	Arc Length and Curvature
13.4	Motion in Space: Velocity and Acceleration
14.1	Functions of Several Variables
14.2	Limits and Continuity (If time permits)
14.3	Partial Derivatives
14.4	Tangent Planes and Differentials
14.5	The Chain Rule
14.6	Directional Derivatives and the Gradient Vector
14.7	Maximum and Minimum Values
14.8	Lagrange Multipliers
15.1	Double Integrals over Rectangles
15.2	Double Integrals over General Regions
15.3	Double Integrals in Polar Coordinates
15.4	Applications of Double Integrals
15.5	Surface Area (Optional)
15.6	Triple Integrals
15.7	Triple Integrals in Spherical Coordinates
15.8	Triple Integrals in Cylindrical Coordinates
15.9	Change of Variables in Multiple Integrals
16.1	Vector Fields
16.2	Line Integrals
16.3	The Fundamental Theorem for Line Integrals
16.4	Green's Theorem