Course title and number	MATH 251 – Engineering Mathematics III Sections 514, 515, 518
Term	Fall 2019
Class times and location	Lecture for 514: MWF 10:20-11:10 HELD 109 Lecture for 515: MWF 11:30-12:20 HELD 107 Lecture for 518: MW 12:45- 2:00 HELD 109

INSTRUCTOR INFORMATION

Name	Mariya Vorobets
My Webpage	http://www.math.tamu.edu/~mvorobet/Math251/F19 Check regularly for announcements and important information, including lecture notes, a course schedule, and other helpful links.
Email address	mvorobet@math.tamu.edu Check your TAMU email account **regularly**, because this is where class emails will be sent.
Office	Blocker 223A
Office hours	M 2:30 -- 3:30 W 2:30 – 4:00 F 1:00 – 3:00 in Blocker 223A or by appointment

COURSE DESCRIPTION AND PREREQUISITES

Description: (Credit 3) Vector algebra, calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line and surface integrals, Stokes' and Green's theorem.

Prerequisites: Math 152 or equivalent.

Calculator Policy: Calculators are NOT allowed on exams.

LEARNING OUTCOMES

We will cover chapter 12 to 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 Stoke's Theorem.

 Apply the computational and conceptual principles of calculus to the solutions of real-world problems.

- **Textbook***: Stewart, *Calculus: 8th 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	Weekly	5%
In-class Activities	Daily	5%
Quizzes	Weekly	10%
Exam I	~Week 4	20%
Exam II	~Week 8	20%
Exam III	~Week 12	20%
Exam IV (Final)	See dates below	20%
TOTAL		100%

- **Grading Scale**

Range	Grade
$90 \leq Average \leq 100$	A
$80 \leq Average < 90$	B
$67 \leq Average < 80$	C
$57 \leq Average < 67$	D
$Average < 57$	F

Attendance and Makeup policies

- **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**. I will not accept the "University Explanatory Statement for Absence from Class" form. 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.

- **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.

ADDITIONAL COURSE INFORMATION AND POLICIES

Exams: There will be 4 exams administered. Bring your Texas A&M student ID and a pencil to all exams. The *tentative* dates for the exams are as follows:

Exam 1:	**Week 4**
Exam 2:	**Week 8**
Exam 3:	**Week 12**
Exam 4:	**Section 514:** Tuesday, Dec. 10, 8:00 – 10:00
	Section 515: Wednesday, Dec. 11, 10:30 – 12:30
	Section 518: Monday, Dec. 9, 10:30 – 12:30

Note: If your final exam grade is higher than your lowest **taken** midterm exam score, the grade on your final will replace that lowest exam grade in the course grade calculation. In order for you to be eligible for this, you must have taken the first three exams.

Graded Homework: Online graded homework assignments will be due each Wednesday, 11:55 pm using WebAssign. WebAssign access is required, and you will have to purchase an access code. Here is where you can find more information on getting the access code: http://www.math.tamu.edu/courses/ehomework. There are no 'make ups' for WebAssign. I will drop the three lowest scores at the end of the term. The 'practice' assignments will not be graded, and therefore are not required.

Suggested Homework: Math cannot be learned by watching someone else do math. It requires a lot of practice. 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. They will not be collected, but doing them to help you learn the material is very important.

Weekly activities: Before each class you will be given a reading assignment. During lecture time the students will work in groups of 5 to complete the activity with my supervision/help. Some of the activities will be turned in for grading.

Quizzes: As time permits, quizzes will be administered throughout the term. These quizzes may or may not be announced ahead of time, and may be open or closed note. Therefore it is very important you keep your notes up to date and organized. The lowest quiz grade will be dropped at the end of the semester.

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.

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:
- Help Sessions   http://www.math.tamu.edu/courses/helpsessions.html
- Academic Calendar   http://registrar.tamu.edu/General/Calendar.aspx
- Final Exam Schedule   http://registrar.tamu.edu/General/finalschedule.aspx

Note: As with any math class, it is *very* important that you keep up with the suggested homework and that you do not fall behind. Please don't hesitate to ask questions in class, to come to my office hours, or to send me an e-mail.

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 DISABILITIES ACT (ADA): 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 THESTUDENT 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/).

Students and faculty can report non-emergency behavior that causes them to be concerned at http://tellsomebody.tamu.edu.

THE INSTRUCTOR RESERVES THE RIGHT TO CHANGE OR AMEND THIS SYLLABUS IN THE INTEREST OF THE BEST STUDENT LEARNING EXPERIENCE.

Suggested Weekly Schedule

Week 1	**Week 2**
Course introduction Three-dimensional coordinate systems (12.1) Vectors (12.2) The dot product (12.3) The cross product (12.4)	Equations of lines and planes (12.5) Cylinders and quadric surfaces (12.6) Vector functions and space curves (13.1)
Week 3	**Week 4**
Derivatives and integrals of vector-functions (13.2) Arc length, curvature, torsion (13.3) Motion in space: displacement, velocity, and acceleration (13.4)	Functions of several variables (14.1) Limits and continuity (briefly) (14.2) Partial derivatives (14.3) **Exam 1** (covers through Section 13.4)
Week 5	**Week 6**
Tangent planes and Linear Approximation (14.4) The chain rule (14.5) Directional derivatives and the gradient vector (14.6)	Maximum and minimum values (14.7) Lagrange multipliers (14.8)
Week 7	**Week 8**
Double integral over rectangles (15.1) Double integral over general regions (15.2)– Double integrals in polar coordinates (15.3)	Applications of double integrals (15.4) **Exam 2** (covers through Section 15.3)

Week 9 Triple integrals (15.6) Triple integrals in cylindrical coordinates (including applications of triple integral)(15.7) Triple integrals in spherical coordinates (15.8)	Week 10 Change of Variables in Multiple Integrals, Jacobians (15.9) Vector fields (16.1) Line integrals (16.2)
Week 11 Curl and divergence (16.5) Fundamental theorem of line integrals (16.3) Green's theorem (16.4)	Week 12 Parametric surfaces and their area (15.5, 16.6) Surface integrals (16.7) **Exam 3** (covers through Section 16.2 and Section 16.5)
Week 13 Continue 16.7 Stokes' Theorem (16.8) The Divergence Theorem (16.9)	Week 14 Continue 16.9 Thanksgiving Break
Week 15 Review for final	