SYLLABUS

INSTRUCTOR: Dr. Ky Tran

OFFICE: B525

LECTURE: MW 3:30 - 4:50 PM, Rec: M 12:30 - 1:25 PM, ROOM: A211

OFFICE HOURS: MW: 1:45 - 3:15 PM

EMAIL: ky.tran@stonybrook.edu

PHONE: 82-32-626-1911

TA AND TA OFFICE HOURS:
　　Jihyeon Lee, jihyeon.lee.3@stonybrook.edu, Monday: 10:30 AM - 12:30 PM
　　Suyoung Park, suyoung.park.1@stonybrook.edu, Tuesday: 1:00 -3:00 PM

COURSE WEBSITE: Brightspace

PREREQUISITES: AMS 161 or MAT 127 or 132 or MPE level 9

TEXTBOOK:
　　Multivariable Calculus, by Ron Larson, and Bruce Edwards, 11th Edition, Brooks/Cole publisher.
　　ISBN-13: 978-1337275378; ISBN-10: 1337275379

TOPICS TO BE COVERED:
　　This is a four credit hours course. The topics covered will include vector algebra and analytic geometry in two and three dimensions; multivariable differential calculus and tangent planes; multivariable integral calculus; optimization and Lagrange multipliers; vector calculus including Greens and Stokes' theorems.

HOMEWORK: Homework assignments will be assigned on a weekly basis. It's important to note that late submissions will not be accepted. For full credit, ensure that you answer the questions in the order they are given and provide detailed, complete solutions for each question. Neatness and legibility are crucial - your instructor needs to be able to read your work easily. This is your chance to demonstrate your understanding of the material.

　　While you are encouraged to discuss homework problems with classmates, teaching assistants, or your instructor, the solutions you submit must be your own work. This is essential for your assignments to be considered for grading.

All homework must be submitted electronically through Brightspace. To avoid issues with lost assignments, no paper homework will be collected. Please write your solutions on paper first. Then, use a scanner or a mobile scanning application (such as Adobe Scan, available on the Play Store or Apple Store, or Camscanner) to digitize your assignment. Ensure that you compile your work into ONE single PDF file. This PDF should be submitted on Brightspace under the respective assignment section. Please note that submissions consisting of multiple PDFs or in formats other than a single PDF will not be accepted and consequently, will not be graded.

To accommodate any challenges you may encounter over the course, we will drop the lowest two homework scores when calculating your average.

EXAMS:

Exam 1 (tentative): Monday, April 1, 2024, in class

Exam 2 (tentative): Wednesday, May 8, 2024, in class

Final: TBA

No make-ups are allowed if you miss an exam without serious and documented reason.

GRADING POLICY

The final grade is based upon the following:

Homework: 20%; Exam 1: 25%; Exam 2: 25%; Final: 30%.

By the School Policy of Attendance, if a student has more than 20% unexcused absences, the student's final grade will be an F.

Grade Scale:

Percentage	[0, 60)	[60, 70)	[70, 73)	[73, 77)	[77, 80)
Grade	F	D	C-	C	C+

Percentage	[80, 83)	[83,87)	[87, 90)	[90, 93)	[93, 100]
Grade	B-	B	B+	A-	A

CELL PHONE AND OTHER ELECTRONIC DEVICES: Cell phone use and the use of other electronic devices are not permitted in class to avoid distractions. Please ensure that your cell phones are set to silent mode and all electronic devices are turned off during class hours. If you anticipate an emergency call, kindly sit near the door so you can answer the call outside the classroom without disturbing others.

Learning Outcomes

1. Demonstrate a firm understanding of the vector algebra and the geometry of two-and three-dimensional space. Specifically students should be able to:

   - explain and apply both the geometric and algebraic properties of vectors in two and three dimensions.
   - compute dot and cross products, and explain their geometric meaning.

- sketch and interpret vector-valued functions in two and three dimensions.

- differentiate and integrate vector-valued functions.

- explain and apply polar, cylindrical and spherical coordinate systems.

2. Demonstrate an understanding of scalar functions in several dimensions, and the application of differential and integral calculus to multi-variable functions. Specifically students should be able to:

- describe and sketch curves and surfaces in three-dimensional space.

- compute the partial derivatives of multi-variable functions.

- compute and explain directional derivatives and gradients.

- determine the extreme values of multiple variable functions.

- use Lagrange multipliers to solve constrained optimizations problems.

- solve double- and triple-integrals using iterated integration.

- set up double- and triple-integrations problems in both Cartesian and curvilinear coordinate systems.

- explain and apply the use of Jacobians in solving double- and triple-integrals by coordinate substitution.

3. Demonstrate an understanding of the fundamental concepts of vector algebra and vector calculus; specifically students should be able to:

- describe and sketch vector fields in two and three dimensions.

- compute and interpret line and surface integrals through scalar or vector fields.

- explain and apply Green's Theorem.

- explain and apply the Divergence Theorem.

- explain and apply Stokes' Theorem.

4. Strengthen ability in communicating and translating of mathematical concepts, models to real world settings:

- present solutions to problems in a clear, well-laid out fashion;

- explain key concepts from the class in written English;

- convert problems described in written English into an appropriate mathematical form;

- convert the mathematical solutions into a written answer.

- use the maple computer program as an aid in solving and visualizing mathematical problems.

School Policy on Attendance

1. If a student has over 20% unexcused absences, the student's final course grade will be an F.

2. Students should report the reason of absence to the professor in advance, or immediately after the absence.

3. When a student excuses his/her absence, the student must provide documentation of the reason for the absence to the professor.

4. The professor of the course reserves the right to excuse absences.

5. The professor may excuse the absence if the submitted documentation fulfills the following conditions: extreme emergences, severe medical reasons with doctor's note, very important events.

Academic Integrity

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at

http://www.stonybrook.edu/commcms/academic_integrity/index.html

Cheating Policy

The grade of Q is assigned to a student found guilty of academic dishonesty. The Q remains on the transcript and is computed in your G.P.A. as a grade of F. Furthermore, a note describing the academic dishonesty is attached to your permanent records with the university.

Disability Support Services (DSS) Statement

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact One-Stop Service Center, Academic Building A201, (82) 32-626-1117. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential. In addition, this statement on emergency evacuation is often included, but not required. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and One-Stop Service Center.

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.

Course Evaluations

Stony Brook University values student feedback in maintaining the high quality education it provides and is committed to the course evaluation process, which includes a mid-semester assessment

as well as an end-of the-semester assessment, giving students a chance to provide information and feedback to an instructor which allows for development and improvement of courses. Please click the the following link to access the course evaluation system: http://stonybrook.campuslabs.com/courseeval/