

Syllabus

Course description: Vector algebra in plane and space. Lines and planes. Quadrics and conics. Curves on plane and space. Curvature, torsion, and Frenet frame. Differentiability. Implicit functions. Extreme value problems. Double and triple integrals. Non-cartesian coordinates in \mathbb{R}^2 and \mathbb{R}^3 . Iteration and change of variables in double and triple integrals. Vector fields. Line/surface integrals of a scalar/vector field. Integral theorems: Gauss's, Stokes' and Green's and their applications to fluid dynamics and electromagnetism.

Prerequisite: C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination.

Textbook: Larson, Edwards *Multivariable Calculus*, 11th edition, Brooks/Cole. The cheapest way to get the book (as e-book) is through WebAssign package (assignments and e-book).

WebAssign. WebAssign is the course online platform and you need to get an access code (the first two weeks are free).

Weekly assignments (due each Thursday 11:59 pm) will be given through WebAssign. You can access WebAssign through Blackboard (Tools → Access WebAssign).

Blackboard. All course documents (Syllabus, Lecture notes, Practice exams, etc.) will be posted on Blackboard in the section of Documents.

Calculators. Calculators will NOT be allowed on the exams. Some homework problems may require use of calculator, though. Google calculator will serve all your needs.

You are encouraged to use any 2D and 3D graphing programs that will help you to visualize multi-variable calculus events (but not on the exams!)

Homework. Homework will be assigned weekly in the form of WebAssign. Paper homeworks may be introduced depending on overall performance of the class.

Exams.

Midterm 1	Mon 9/30	5:30pm-6:50pm (in class)
Midterm 2	Mon 11/11	5:30pm-6:50pm (in class)
Final	Th 12/19	2:15pm-5:00pm

Missing an exam without any serious and documented reason will result to failure in the course.

Make-up policy. Make-up examinations are given only for work missed due to unforeseen circumstances beyond the student's control. Late home work will not be accepted. Extra assignments to "boost" the grades will not be given.

Grading System. Your grade for the course will be based on: WebAssign and Homework: 10%, Midterm 1: 25%, Midterm 2: 25%, Final Exam: 40%.

Where to get help. If you have any mathematical questions or concerns, your instructors are ready to help you. Please address to your recitation instructor (during his/her office hours or by e-mail) or your lecturer (during office hours or by e-mail).

Also, you can get help in Math Learning Center (MLC). It is located in Math building S-235. No appointment is needed.

Instructors. Lecturer: Julia Viro (julia.viro@stonybrook.edu) Office hours: Monday, Wednesday at 4pm-5pm (MLC) and Tuesday, Thursday at 10am-11am (MLC) or by appointment.

Recitation instructors:

Recitation	Instructor	e-mail	Office	Hours
R20 (W 11-11:53)	Myeongjae Lee	Myeongjae.Lee @stonybrook.edu	S-240A	M 10-12 (MLC) M 1-2 (S-240A)
R22 (F 12-12:53) R23 (Tu 4-4:53)	Juan Ysimura	Juan.Ysimura@stonybrook.edu	P-133	M 9-10 Tu 3-4 F 10-11
R24 (Th 2:30-3:23)	Siqing Zhang	Siqing.Zhang@stonybrook.edu	S-240A	W 4:30-6:30 (MLC) W 6:30-7:30(S-240A)

Student Accessibility Support Center (SASC) statement: If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact SASC (631) 632-6748 or <http://studentaffairs.stonybrook.edu/dss/>. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and SASC. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities/asp>.

Academic integrity statement: 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 instance 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/uaa/academicjudiciary>

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, and/or inhibits students' ability to learn.

Days	Weekly plan	Sections
M 8/26, W 8/28	Vector geometry on a plane and in the space.	11.1-11.4
M 9/2(no classes), W 9/4	Lines and planes.	11.5
M 9/9, W 9/11	Quadrics and conics.	11.6
M 9/16, W 9/18	Curves and their parametrization. Curvature and torsion. Frenet-Serret formulas.	12.1-12.5
M 9/23, W 9/25	Functions of several variables. Partial derivatives. Differentiability. Tangent plane.	13.1-13.4
M 9/30, W 10/2	Chain rule. Implicit differentiation. Implicit function theorem. Gradient and directional derivative. Midterm 1 is on M 9/30.	13.5-13.7
M 10/7, W 10/9	Extreme value problems: local, on a compact domain, with constraints.	13.8-13.10
M 10/14(no classes), W 10/16	Extreme value problems (cont.)	13.8-13.10
M 10/21, W 10/23	Double integrals. Iteration. Change of variables. Jacobian. Polar coordinates.	14.1-14.3, 14.8
M 10/28, W 10/30	Triple integrals. Iteration and change of variables. Cylindrical and spherical coordinates.	14.6-14.7
M 11/4, W 11/6	Vector fields. Conservative fields. Line integrals.	15.1-15.3
M 11/11, W 11/13	Surfaces and their parametrization. Midterm 2 is on Mon 11/11	
M 11/18, W 11/20	Area of a surface. Surface integrals.	15.5, 14.5, 15.6
M 11/25, W 11/27(no classes)	Integral theorems: Gauss's, Stokes's and Green's.	15.7-15.8, 15.4
M 12/2, W 12/4	Integral theorems and their applications to fluid dynamics and electromagnetism.	lecture notes
M 12/9	Review for the Final.	lecture notes
Th 12/12 at 2:15pm-5:00pm	Final Exam	