

# MAT 203: CALCULUS III WITH APPLICATIONS

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Stony Brook University  
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- Description:** Calculus III covers the study of vectors in two and three dimensions, multivariate functions, differentiation and integration in higher dimensions, vector calculus and applications in geometry, optimisation and physics.
- Textbook:** *Calculus Volume 3*, by Gilbert Strang.  
Available free online: [Calculus Volume 3 - OpenStax](#)
- Prerequisite:** C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination.
- Instructor:** Willie Rush Lim  
Email: [lim.willie@stonybrook.edu](mailto:lim.willie@stonybrook.edu)
- Lectures:** TuTh at 9:00 am – 1:25 pm EST live via zoom  
Lectures will not be recorded but notes will be supplied.
- Help:** My office hours is on every Friday at 1:30–2:30 pm EST via zoom through the following link: <https://stonybrook.zoom.us/j/5646113117>  
My MLC hours is TBD. Students are highly encouraged to attend office hours and/or visit the MLC especially if there are any questions regarding the course material.
- Grading:** Webassign 40%, Midterm 20%, Final 40%
- Webassign:** Assignments are a fundamental part of this course, and you will have to work hard on the assigned problems in order to reinforce your understanding and succeed. Weekly assignments will be given via Webassign due every Sunday 11.59pm ET.
- Exams:** There will be a midterm and final examination for this course. Both will be carried out through Gradescope. Midterm will be take-home style whereas the final will be carried out during lecture time on 8/12. You are allowed to consult textbooks, homework, and lecture material, but you are expected not to discuss the exam problems with anyone digitally or in-person. Offering and accepting solutions from others is an act of plagiarism, which is a serious offense and all involved parties will be penalized according to the Academic Integrity Policy.

**(Tentative) Class Schedule:**

Date	Contents
7/6	Vector operations, dot and cross products
7/8	Lines and planes in 3-dimensional space, cylindrical and spherical coordinates
7/13	Vector-valued functions, limits, derivatives, integrals, and arc length
7/15	Functions of several variables, limits, partial derivatives, tangent planes, chain rule
7/20	Directional derivatives, gradient, second derivative test, optimisation problems
7/22	Double integrals, Fubini's theorem, integrals in polar coordinates, area and volume
7/27	Triple integrals, integrals in cylindrical and spherical coordinates, change of variables
7/29	Vector fields, line integrals, flux and circulation, potential functions
8/3	Greens' theorem, divergence and curl
8/5	Surface integral, Stokes' and divergence theorems
8/10	Review
8/12	Final Exam

**Student Accessibility Support Center Statement**

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or via e-mail at: [sasc@stonybrook.edu](mailto:sasc@stonybrook.edu). They will determine with you what accommodations are necessary and appropriate. All information and documentation are confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center. For procedures and information go to the following website: <https://ehs.stonybrook.edu/programs/fire-safety/emergency-evacuation/evacuation-guide-people-physical-disabilities> and search Fire Safety and Evacuation and Disabilities.

**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 is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. 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](http://www.stonybrook.edu/commcms/academic_integrity/index.html)

**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 University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.