

MA 225-C - Infinite Series
Department of Mathematical Sciences

Instructor: Pedro Vilanova pguerra@stevens.edu

TA: Joshua Richter jrichte1@stevens.edu

Grader: Dakshayeni Bujunuru dbujunur@stevens.edu

Lectures: Section C: MWF 10:00-10:50 am Edwin A. Stevens 222

Recitations: on Thursday.

Joshua Office Hours: TBA

Pedro Office Hours: TBA

Pedro Virtual Office Hours: Zoom by appointment. Zoom link:

<https://stevens.zoom.us/j/6676990362>

[Links to an external site.](#)

COURSE DESCRIPTION

This course introduces students to infinite sequences, series, power series, and their applications. Topics include convergence properties of sequences and series, power series and their convergence intervals, Taylor polynomials, and Taylor series for smooth functions of one or multiple variables.

STUDENT LEARNING OUTCOMES

After successful completion of this course, students will be able to...

- State fundamental properties of infinite series and apply them, as appropriate.
- Determine convergence and divergence of infinite series by applying appropriate tests.

- Recognize various types of convergence.
- Find power series representations of a function.
- Find the interval of convergence of a power series.
- Approximate smooth univariate and multivariate functions by their Taylor polynomials and find a bound for the estimation error.

COURSE FORMAT AND STRUCTURE

This course is on-campus. Lectures are on MWF. Recitations are on Thursday.

Course Logistics

- When assignments are due, they are typically due by 11:59 pm EST on the due date listed in the course schedule and periodically posted on Canvas.
- Deadlines are an unavoidable part of being a professional, and this course is no exception. Course requirements must be completed and posted or submitted on or before the specified due date and delivery time deadline. Due dates and delivery time deadlines are in Eastern Time (as used in Hoboken, NJ). Please note that students living in distant time zones or overseas must comply with this course time and due date deadline policy. Avoid any inclination to procrastinate. Due dates have been established for each assignment to encourage you to stay on schedule.

COURSE SCHEDULE


Please refer to the modules section.

COURSE MATERIALS

Textbooks:

- Required:
 - OpenStax Calculus (OSC) is freely available [here](#)

 [Links to an external site.](#)

 Multivariable Calculus (MCA) is freely available [here](#)

- - [Links to an external site.](#)
- Recommended:
 - Calculus: Concepts and Contexts, Multivariable by James Stewart, 4th Edition.

Other Readings:

- Notes posted on Canvas.
- Slides.

COURSE REQUIREMENTS

The work requirements include online assignments, through Canvas, written homework, participation in lectures and ensuing discussions, and written quizzes and exams.

Lecture attendance and participation: Lectures are where the main theoretical concepts and techniques are developed and discussed. Lecture attendance is mandatory and is part of the grade. During the lectures, there will be polls and possible clicker questions. We'll be calling students at random to participate in discussions as well. If a student is called during a session and does not respond they will not receive their attendance grade. Every student is allowed 1 absence which is not excused. For the first 2-9 absences, 5% of the attendance grade is deducted for each unexcused absence. After 9 absences the attendance grade will be 0. No extra credit will replace attendance grades.

Recitations (Problem Sessions): These are problem sessions where students can practice the problems presented and get additional help with mastering the material from the lecture and asking questions related to the online and written assignments if they wish. Problem sets will be posted on Canvas before the recitations, so students have time to work on these problems before the recitation. TAs may call students at random to present their solutions to the rest of the class with the assistance of the TA.

Canvas homework assignments: The main goal of these exercises is to develop the routine skills necessary to carry out computations. Some of these assignments might include questions on forthcoming material that require independent reading.

Written homework assignments: There will be 3-4 written homework assignments. These may consist of more complex problems addressing the theoretical or applied aspects of the material. The scans of the assignments in pdf format need to be uploaded to Canvas.

Quizzes and Exams: There will be two, 45-60- minute-long in-person written quizzes and one 75-minute-long in-person final written exam during the (half)-semester. All quizzes and exams are held during recitation times as in the course schedule. **The final exam is cumulative.**

Remember: *"If one asks for the solution of a problem, the knowledge does not remain. It is as if one had borrowed it. On the other hand, if one thinks until solving it, it is as if one had acquired it forever."*

GRADING

Class Attendance
and Participation 10%

Written Homework 20%

Canvas Assignments 15%

Quiz 1 15%

Quiz 2 15%

Final Exam 25%

Final Letter Grades will be based on the following grade scale:

A [92,100]	A- [88, 92)	B+ [85, 88)	B [81 85)	B- [77, 81)	
C+ [73, 77)	C [70, 73)	C- [68, 70)	D+ [65, 68)	D [60, 65)	F [0, 60)

Late Policy

Assignments received up to 48 hours late will have 20% of the total points deducted (no exceptions); Medical exceptions require a notice of 24 hours in advance and a medical receipt of an in-person visit. Assignments received more than 48 hours late will receive 0 points.

Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and uphold the ideals outlined in the Honor System Constitution. More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at <http://web.stevens.edu/honor/>

[Links to an external site.](#)

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes, and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

“I pledge my honor that I have abided by the Stevens Honor System.”

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor

[Links to an external site..](#)

EXAM CONDITIONS

The following procedures apply to quizzes and exams for this course. As the instructor, I reserve the right to modify any conditions set forth below by printing revised Exam Conditions on the quiz or exam.

1.

1. Students may use the following materials during quizzes and/or exams. Any materials that are not mentioned in the list below are not permitted.

Material	Permitted?	
	Yes	No
Handwritten Notes Conditions: One page, two-sided, letter size, hand-written notes	X	

Typed Notes		X
Conditions: i.e. size of note sheet		
Textbooks		X
Conditions: i.e. specific books		
Readings		X
Conditions: i.e. specific documents		
Other (specify)		X

2. Students are not allowed to use any electronic means (e.g. laptop, cell phone) nor work with or talk to other students during quizzes and/or exams.

LEARNING ACCOMMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

For more information about Disability Services and the process to receive accommodations, visit <https://www.stevens.edu/office-disability-services>

[Links to an external site.](#) If you have any questions please contact Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at pgehman@stevens.edu or by phone 201-216-3748.

Disability Services Confidentiality Policy

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act

(FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates the disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

INCLUSIVITY

Name and Pronoun Usage

As this course includes group work and class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

Inclusion Statement

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.

MENTAL HEALTH RESOURCES

Part of being successful in the classroom involves a focus on your whole self, including your mental health. While you are at Stevens, there are many resources to promote and support mental health. The Office of Counseling and Psychological Services (CAPS) offers free and confidential services to all enrolled students who are struggling to cope with personal issues (e.g., difficulty adjusting to college or trouble managing stress) or

psychological difficulties (e.g., anxiety and depression). Appointments can be made by phone (201-216-5177).

EMERGENCY INFORMATION

In the event of an urgent or emergent concern about the safety of yourself or someone else in the Stevens community, please immediately call the Stevens Campus Police at 201-216-5105 or on their emergency line at 201-216-3911. These phone lines are staffed 24/7, year-round. For students who do not reside near the campus and require emergency support, please contact your local emergency response providers at 911 or via your local police precinct. Other 24/7 national resources for students dealing with mental health crises include the National Suicide Prevention Lifeline (1-800-273-8255) and the Crisis Text Line (text “Home” to 741-741). If you are concerned about the well-being of another Stevens student, and the matter is *not* urgent or time-sensitive, please email the CARE Team at care@stevens.edu. A member of the CARE Team will respond to your concern as soon as possible.