

Purdue University, Fall 2023
Multivariable Calculus Honors, 5 cr, **MA 27101**, CRN 16744, In person
Syllabus

Professor: Uli Walther
Office: 746 MATH
walther@purdue.edu

Recitation TA: Geoffrey Baring
Office: 1039 MATH
gbaring@purdue.edu

Course Description

This course is the Honors version of MA 26100, Multivariate Calculus; it will also include a review of infinite series. The course is intended for first-year students who have credit for Calculus I and II. There will be a significant emphasis on conceptual explanation, but not on formal proof. Permission of department is required.

1 General Information

1.1 Purdue Pledge

As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together—we are Purdue.

1.2 Class time / location:

Lecture: MTWTh UNIV 217

Recitation: Fr UNIV 217/HAMP 2101

Purdue Policy requires students to come to lecture and recitation—aside from covid adjustments, see 3.4 below. Students bear the responsibility of informing the instructor of missed class time in a timely fashion. Aside from sudden illness, this means “ahead of time”.

1.3 Dates

In-class instruction begins Aug 21, ends Dec 8, unless life interferes. Off-days are Sep 4 (Labor day), Oct 9, 10 (October break) and Nov 22, 23, 24 (Thanksgiving). Finals week is Dec 11-16.

1.4 Office Hours:

Uli: Mon 11:30-12:30, Th 10:30-11:30 in MATH 746.

Geoffrey: Tue 11:30-12:20pm, Wed 2:30-3:30 in MATH 1039.

1.5 Reading material:

The following three texts (all with authors Hass, Heil, Weir) can be used:

1. *Thomas' Calculus: Multivariable Volume (loose leaf)*: ISBN 9780134639543

or

2. *Thomas' Calculus: Multivariable Volume*: ISBN 9780134606088

These two are (each) the chapters 10-16 from the book:

3. *Thomas' Calculus, Early Transcendentals*, 14th Edition, Pearson 2018.

Any of these three will work as we cover chapters 10-16 from the textbook.

1.6 Webpages:

Main webpage with syllabus, assignments, course calendar, etc:
<https://www.math.purdue.edu/~walther/teach/>

Brightspace: <https://purdue.brightspace.com>.

Gradescope: www.gradescope.com

1.7 Statement for Students with Disabilities

Purdue University strives to make learning experiences accessible to all participants. If you anticipate or experience physical or academic barriers based on disability, you are encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

If you have been certified by the Disability Resource Center (DRC) as eligible for academic adjustments on exams or quizzes see www.math.purdue.edu/ada for exam and quiz procedures for your mathematics course. If you have questions please send email to Stephanie Foster (foster80@purdue.edu)

In the event that you are waiting to be certified by the Disability Resource Center we encourage you to review our procedures prior to being certified.

For all in-class accommodations please contact your instructor as soon as possible, preferably at the first meeting. Here are instructions for sending your Course Accessibility Letter to your instructor: <https://www.purdue.edu/drc/students/course-accessibility-letter.php>

1.8 CAPS Information

If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) via <http://www.purdue.edu/caps/> or (765)494-6995 (these should work at any time at all), or through its counselors physically located in the Purdue University Student Health Center (PUSH) during business hours.

1.9 Basic Needs

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. There is no appointment needed and Student Support Services is available to serve students 8 am-5 pm Monday through Friday. Students may submit requests for emergency assistance from the Critical Needs Fund

2 Course Structure

2.1 Material covered

Refer to the daily course calendar,

<https://www.math.purdue.edu/~walther/teach/271/2023/271f23calendar.html>

2.2 Grading

If you disagree with the grading in any category, you need to resubmit the item in question **with a written explanation** stating *why* (and not just *that*) you deserve more credit.

2.3 Homework:

HW is due Tuesdays and Fridays via **gradescope** upload. See the assignment sheet and the course calendar on our webpage for information what to submit on what day.

No late assignments will be accepted. Neither will homework deposited anywhere else.

Homework must be **readable**. Illegible scribblings will receive no credit from the grader.

For **gradescope** uploads, use **one page per problem**, and submit pdf files.

You are encouraged to discuss all problems with your classmates. However, the write-up must be of **your own**.

2.4 Exams:

There will be two midterms, in week 5 (Tue September 19), and in week 10 (Wed October 25). Both are from 8pm to 9pm, and will be in BRNG 2280. Makeup tests may be given in extraordinary instances, but only with *documented* reasons.

2.5 Course Grade:

Your course grade will be determined by a curve, using the following distribution:

Quizzes	15%
HW	40%
3 Midterms	45%

Students who get at least 97% of the total points in this course are guaranteed an A+, 93% guarantees an A, 90% an A-, 87% a B+, 83% a B, 80% a B-, 77% a C+, 73% a C, 70% a C-, 67% a D+, 63% a D, and 60% a D-; for each of these grades, it's possible that at the end of the semester a somewhat lower percentage will be enough to get that grade. For example, in a recent year, the distribution was: 95,90,85,80,76,72,68,62 for A+ through C.)

You are encouraged to ask me about this in class!

2.6 Dead Week

In the week before finals, the Friday assignment carries no credit. You can submit it, or not. You can use them to gauge what questions one could ask about 16.8 on the final.

Note that on Sunday of week 15 an assignment is due. Late turn-in for that assignment is accepted until the following Tuesday.

2.7 Calculators

Calculators are **not allowed** on any test.

2.8 Prerequisites

Mastery of single variable calculus, and some linear algebra as it pertains to geometry in 3-space.

2.9 Course learning outcomes

The students will gain knowledge, overview, and understanding in the following four modules: sequences and series; multiple integrals; vector fields and partial derivatives; theorems of Green, Stokes, Gauss etc. Students will assimilate these mathematical ideas while applying them to scientific questions arising in physics and other sciences.

Successful mastery of the theory and praxis of the following notions are fundamental to passing the course: convergence of series and sequences; evaluation of surface and space integrals, with coordinate change if necessary; tangents, differentials, gradients and normals; Taylor formula; potentials, flux, circulation, curl and divergence; theorems of Green, Stokes, Gauss.

3 Being a member of the university community

3.1 Classroom Safety

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Here are ways to get information about such events.

- Course and class web pages (see item 1.6)
- In particular, review the instructions on <http://www.math.purdue.edu/~walther/teach/emergency.pdf>.

PURDUE WANTS YOU TO KNOW:

Emergency preparedness is your personal responsibility. Purdue University is actively preparing for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus.

- For any emergency call 911.
- There are nearly 300 Emergency Telephone Systems throughout campus that connect directly to the Purdue Police Department (PUPD). If you feel threatened or need help, push the button and you will be connected to the PUPD.
- Fire alarm: immediately evacuate the building; do not use the elevator.
- Shelter in Place requirement for a tornado warning (siren): shelter in the lowest level of this building away from windows and doors.
- Shelter in Place requirement for a hazardous materials release: stay in our classroom shutting any open doors and windows.
- Shelter in Place requirement for an active threat such as a shooting (siren): stay in our classroom and try to lock it.

3.2 Academic Honesty:

- Incidents of academic misconduct in this course will be addressed by the course instructor and referred to the Office of Student Rights and Responsibilities (OSRR) for review at the university level. Any violation of course policies as it relates to academic integrity will result minimally in a failing or zero grade for that particular assignment, and at the instructor's discretion may result in a failing grade for the course. In addition, all incidents of academic misconduct will be forwarded to OSRR, where university penalties, including removal from the university, may be considered.

- In order to prevent cheating, we ask that you keep your eyes on your sheet at all times during exams. Looking around is forbidden.

- All electronic devices are forbidden during exams. This includes calculators, cell phones, PDAs, music players, and smart phones and ANYTHING ELSE of electronic nature.

- Working on an exam either before or after the official time is considered cheating. The exam of any student who is caught writing after time is up or before the exam begins may receive a grade of zero on the entire test, and may also be reported to the Dean of Students. The office of the Dean of Students may choose to apply further punishment.

- Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert the university of potential breaches by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, more information submitted provides a greater opportunity for the university to investigate the concern.

3.3 Classroom Rules:

- Unless other arrangements have been made with the instructor, phones and other communication devices must be turned off and stowed away during class.

- Respect your instructor, your TA, and your fellow classmates. Students who act in a disruptive or disrespectful manner (e.g., arriving late, texting, sending email, surfing the web, talking, etc.) may be asked to leave the classroom.

- All course material is copyrighted. ANY reproduction or storage in a retrieval system (e.g. the Internet) is prohibited without an explicit agreement with the author of the work. This includes course notes (including your own), homework questions, and exams.

- Taking pictures or making audio/video recording of the lectures is prohibited without the instructor's prior approval. The instructor can forbid all recording.

- Ultimately students are responsible for all required coursework and bear full responsibility for any academic consequences that may result due to absence: www.purdue.edu/studentregulations/regulations_procedures/classes.html

3.4 Quarantine/Isolation

Do not come to school if you do not feel well. If covid cases have happened in your bubble, get tested immediately.

If you cannot come to class for health reasons:

1. Talk to Protect Purdue Health Center (496-INFO).
2. Make sure the instructor has received written notice via email from you and the ODOS.
3. Read the book sections as given on the course calendar webpage.
4. Submit homework through gradescope as always.

5. Quizzes will be prorated (you earn the average of your other quizzes for medically missed quizzes).
6. Midterm makeups require separate agreements with the professor.

3.5 Covid Pledge 2022:

Since the beginning of the COVID-19 pandemic, Boilermakers have taken extraordinary and persistent steps to protect each other and our campus community.

As part of the Purdue community, I will continue to take responsibility for my own health and protect others, as well as our campus community, by helping to stop the spread of COVID-19 and other infections.

I Pledge To:

1. Protect Myself

I will regularly assess my individual risk for serious disease from COVID-19. Considerations include staying up-to-date on COVID-19 vaccinations as recommended by the CDC, and wearing a face mask in public if risk of exposure is high. I understand that staying up-to-date on COVID-19 vaccinations, including boosters, is encouraged.

If I experience any symptoms of COVID-19, whether I am vaccinated or not, I will test quickly either by using an at-home test or by contacting the Purdue University Student Health Center (students), the Center for Healthy Living (employees), or my primary care provider, quarantine in the meantime, and follow additional instructions.

Take personal responsibility, access available resources and practice self-care for my mental health and overall well-being.

2. Protect Others:

Have a personal plan for proper isolation or quarantine should it be necessary and on-campus accommodations not be available.

If I am exposed to an individual who is ill or has tested positive for COVID-19, I will follow Protect Purdue recommendations for any needed testing and/or quarantine.

Adhere to evolving Protect Purdue safety protocols as communicated and posted.

Look out for others, encourage their faithful commitment to the Pledge, and respect their right to choose to wear a mask when masks are not required.

3. Protect Our Purdue Community:

Stay home, away from others, and contact the PUSH (students), CHL (employees), or my primary care provider if I feel ill.

Participate in testing and contact tracing if deemed medically necessary to preserve the wellness of our Purdue community and the continued operations of our University.

3.6 Nondiscrimination

Please see https://www.purdue.edu/purdue/ea_eou_statement.php