



Lecture Schedule

LEC 01	Monday	12:00–13:00	IC 130
	Friday	13:00–15:00	IC 130

Important Dates

- Reading Week: Saturday February 18th – Sunday February 26th
- Drop deadline: Monday March 27th

Professor for the Course

Parker Glynn-Adey (he/him)

Preferred Names: “Parker” or “Professor Parker”

E-Mail: parker.glynn.adey@utoronto.ca

Website: <https://pgadey.ca/>

Office: IC 344

Office Hours

Parker holds office hours on Wednesdays and Fridays 10-11:00am in IC 404. Office hours are a dedicated time that Parker is available to answer your questions, discuss course content, and generally be of support. If you would like help in the course but have a scheduling conflict that prevents you from attending office hours, please email us to schedule an appointment.

Textbooks

- Marsden and Tromba. Vector Calculus. 6th Edition.

Prerequisite / Exclusions

Prerequisites:

MAT B41

Exclusions:

MAT235Y, MAT237Y, MAT257Y, MAT368H

Course Description:

“Fourier series. Vector fields in \mathbb{R}^n , divergence and curl, curves, parametric representation of curves, path and line integrals, surfaces, parametric representations of surfaces, surface integrals. Green’s, Gauss’, and Stokes’ theorems will also be covered. An introduction to differential forms, total derivative.”

Course Outline

- Fourier Series with Applications to PDEs
- Paths and Curves
- Vector Fields
- The Classical Theorems: Green, Stokes, and Gauss

Student Learning Outcomes

By the end of the course, students will be able to:

- Solve PDEs using Fourier Series
- Model paths and surfaces in three-dimensional space
- Evaluate integrals over curves and surfaces
- State and prove theorems about differential forms

Grading Scheme

Exam	$1 \times 50\% =$	50%
Test	$1 \times 30\% =$	30%
Assignments	$(6 - 1) \times 4\% =$	20%

Grading Policy

The grading scale for this course is based on a points system. Therefore, grades will NOT be rounded up or down. In general, grades are only changed due to a miscalculation. If you have concerns about your grade on an assignment, or term test, you have five days after the grade is posted on Crowdmark to contact the TA who graded the question. Therefore, do NOT wait until the end of the academic term if you have questions about your grade. For a list of who graded which questions, please see the Quercus page.

All grades will be distributed via Crowdmark. You will not see your grades on Quercus.

Assignments

Goal: these assignments give you the opportunity to deepen your understanding of topics covered in this course, and to practice. We use these assignments to determine if you can solve problems slowly, without time constraints.

Procedure: we will be using Crowdmark to grade assignment submissions. You will get a personalized submission link sent to your UToronto email address. Do NOT share this link with other students.

Due Date and the Zero Date: Every assignment has a due date and a zero date. Crowdmark and Quercus will list a due date on Friday. The following Monday will be the zero date. The due date is the recommended date for submitting the assignment. If you submit after the zero date, your assignment will receive a grade of zero. The due date and zero date are both in the early afternoon at 13:59 (EST).

Evaluation Criteria: The TAs will only grade two questions. This policy is called *subset grading*. Present your solutions in a logical and clear manner. Detailed solutions will be made available shortly after the zero date. Please pay attention to the following when writing assignments:

Format: solutions are neatly and correctly assembled and have a professional style. The graders should not struggle to read your work.

Completeness: all steps are clearly and accurately explained.

Content: the written solutions demonstrate mastery and fluency with the content of the course.

tl;dr: Do good work and submit it via Crowdmark as early as possible.

Advice on Submitting Assignments

- Photograph all your pages early.
- Set aside at least a half an hour to upload your assignment.

- Check and re-check your submission.
- Submit your assignment as early as possible.

The Day of Small Things

On Wednesday April 12th, the first Wednesday after Week 12 of Term, Parker will hold office hours 10-12:00 and 13-15:00 in IC 344. These special office hours are called “The Day of Small Things”. If you have any issues during the term that cannot be handle, in a simple manner, then the issue will be handled on that day. You will have to come to campus and discuss the matter with Parker in order to get it resolved.

The Term Test

The term test will be written outside of regular lecture hours. The dates will be determined by the Registrar. We have requested that it will happen in Week 4, 5, or 6. The term test may happen on a Friday or Saturday. If you cannot attend reasons of creed or religion, then you must contact Parker as early as possible to arrange for an alternative sitting.

If you miss a test then you must complete the Self-Declaration of Absence form on ACORN. If you miss the test for medical reasons, then you will need to send a UTSC Verification of Student Illness or Injury form to Parker:

http://www.utsc.utoronto.ca/~Eregistrar/resources/pdf_general/UTSCmedicalcertificate.pdf

Students who miss the midterm test will be asked to declare their absceance and fill out a Google Form. You will be given only one opportunity to write the make-up test.

The Exam

The exam will be written during the winter exam period (April 13 - 27) and will be conducted according to official [UTSC Exam Regulations](#).

Electronic Aids

All calculators, laptops, phones, smart watches, and any device capable of sending and receiving messages or performing calculations will not be permitted during the term test or final exam. Possession of any electronic device during the term test or final exam is an academic offense. You may use these aids only for homework and study.

AccessAbility

If you have any reason to believe that you may require accommodations, contact Parker and/or the AccessAbility Services as soon as possible. We can discuss the particulars of your situation and, if needed, get you registered with AccessAbility Services. AccessAbility Services staff (located in AA

142) are available by appointment to: assess specific needs, interact with professors, provide referrals to medical professionals, and arrange appropriate accommodations. You can reach AccessAbility at: ability.uts@utoronto.ca.

Academic Integrity

The [Code of Behaviour on Academic Matters](#) states:

“It shall be an offence for a student knowingly:

1. to forge or in any other way alter or falsify any document or evidence required by the University, or to utter, circulate or make use of any such forged, altered or falsified document, whether the record be in print or electronic form;
2. to use or possess an unauthorized aid or aids or obtain unauthorized assistance in any academic examination or term test or in connection with any other form of academic work;
3. to personate another person, or to have another person personate, at any academic examination or term test or in connection with any other form of academic work;
4. to represent as one’s own any idea or expression of an idea or work of another in any academic examination or term test or in connection with any other form of academic work, i.e. to commit plagiarism (for a more detailed account of plagiarism, see [Appendix A](#));
5. to submit, without the knowledge and approval of the instructor to whom it is submitted, any academic work for which credit has previously been obtained or is being sought in another course or program of study in the University or elsewhere;
6. to submit any academic work containing a purported statement of fact or reference to a source which has been concocted”

Summary

Do not manipulate document, use unauthorized aids, impersonate¹ someone else, copy solutions, or submit your own work from other courses. Simply put, do not cheat in this course.

Be careful!

1. Don’t let people photograph your work. Make them write their own summary.
2. Don’t hire a tutor to complete your assignments. Ask them to check your work.
3. Don’t reproduce solutions found online. Discuss potential solutions with your TA or Parker.
4. Don’t let a TA do your assignment. Try the questions before tutorial or office hours.
5. Don’t bring unauthorized items to evaluations. Leave your phone and watch at home.

¹Believe it or not, people do this. Don’t hire an imposter off Craig’s List to write your test.

Helpful Resources

- The Math Help Room (IC404) is always helpful. The TAs and Parker hold office hours there.
- [The Centre for Teaching and Learning](#) has numeracy workshops.

Communication Policy

Please follow the following order of communication:

1. In-person during lecture or tutorial
2. In-person during office hours
3. Piazza
4. E-mail

That is, please reach out in-person first and use e-mail as a last resort. Before sending an e-mail, be sure to post on Piazza. If you have a question, many other people have it too.

E-Mail Communication

All e-mail must be from an official University of Toronto account. You must include [MAT B42] in the subject line, or your e-mail might get lost. Please include your name and student number in every e-mail that you send. Be sure to include the precise question, and the problem or difficulty.

```
To:  parker.glynn.adey@utoronto.ca
From:  leonhard.euler@utoronto.ca
Subject:  [MAT B42] What is a vector?
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Hi!  I am Leonhard Euler (12932188) from MAT B42.
I need help with this question:  Find a vector orthogonal to  $v = [1,0]$ .
My problem is this:  I don't know what the word "vector" means.
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Thanks!
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Modifications to Course Delivery

Parker reserves the right to modify the course requirements, mode of delivery, and other related policies as circumstances may dictate with sufficient notification to all students. Given the COVID-19 Pandemic, he recognizes that unanticipated emergencies may arise that require modifications to our class schedule and/or requirements. Parker does not expect to invoke this clause, but if he needs to, you will be notified as soon as possible. Any change will be posted on our Quercus site and sent to your university email address.

FAQ: Errors While Submitting Assignments

What happens if my internet stops working on Friday?

You have extra time to submit your work. If your internet stops working on Friday, you will have all weekend to upload your assignment.

What happens if my internet stops working on Monday?

Due to cosmic rays, coming from deep in outer space, many people have problems with their internet at the very last minute. If your internet fails on Monday, and you are not able to upload your work, then you will receive a zero.

What happens if I upload all my work and forget to hit submit?

Your work will not be graded. You will receive a zero for the assignment.

Can I send you a screenshot to show that I completed the work on time?

Screenshots sent to us to prove that it was completed before the zero date will not be accepted.

What happens if I e-mail my assignment instead of submitting it to Crowdmark?

The instructional team of professors and TAs will not accept work sent by e-mail. All work must be submitted through Crowdmark.

What happens if I slip my paper under the professor's door?

Your work will not be accepted. All work must be submitted through Crowdmark.

What happens if I upload the files in the wrong order?

The instructional team will not correct your file order. You must check that you uploaded everything in the correct order.

What happens if I upload all the questions to one question's slot?

Your work will not be graded. The TAs will not search Crowdmark for your work.

What happens if the TAs cannot read my work?

The grader will flag your work as illegible, it will not be graded, and you can request a regrade.

What happens if I don't submit some of my work by accident?

The instructional team will not accept additional work, unless it is entered via Crowdmark before zero date.

FAQ: Term Test

When will the test occur?

At this time, we do not know when the test will occur. It will be announced on Quercus as soon as we know the date. You can expect at least two weeks notice.

What happens if I miss a test?

You will need to use the Self-Declaration of Absence Form on ACORN within 24 hour of the test. For instructions, see [this document](#).

What if I am unable to attend a make-up test due to a conflicting class or assessment?

You will need to choose which event to attend. If you have a conflicting class or assessment, then you might ask the other professor for an accomodation.

What happens if I am unable to write a term test or the make-up test?

You will receive a zero for that test grade.

Can I transfer the weight of a term test to my final exam?

No. We will not transfer the weight of a term test to the final exam.

If I score better on the final exam, can it replace my term test grades?

No. We will not replace a low term test grade with a higher final exam grade.

MAT B42 Schedule (Winter 2023) Please print this page for reference throughout the course.

Week / Dates	Textbook material to be covered	Homework etc.
Week 1 Mon. Jan. 10 Fri. Jan. 13	Hughes-Hallett: Fourier Series (See Week 1 Readings on Quercus)	Welcome!
Week 2 Mon. Jan. 16 Fri. Jan. 20	Applications of Fourier Series to PDEs (See Week 2 Readings on Quercus)	Tutorials start Homework #1
Week 3 Mon. Jan. 23 Fri. Jan. 27	§2.4: Introduction to Paths and Curves §4.1: Acceleration and Newton's Second Law §4.2: Arc Length	
Week 4 Mon. Jan. 30 Fri. Feb. 3	§4.3: Vector Fields §7.1: The Path Integral	Homework #2
Week 5 Mon. Feb. 6 Fri. Feb. 10	§7.2: Line Integrals	
Week 6 Mon. Feb. 13 Fri. Feb. 17	§4.4: Divergence and Curl §8.1: Green's Theorem (without the vector form)	Homework #3
READING WEEK		
Week 7 Mon. Feb. 27 Fri. Mar. 3	§7.3: Parametrized Surfaces §7.4: Area of a Surface	
Week 8 Mon. Mar. 6 Fri. Mar. 10	§7.5: Integrals of Scalar Functions over Surfaces	Homework #4
Week 9 Mon. Mar. 13 Fri. Mar. 17	§8.2: Stokes' Theorem §8.3: Conservative Vector Fields	
Week 10 Mon. Mar. 20 Fri. Mar. 24	§8.4: Gauss' Theorem	Homework #5
Week 11 Mon. Mar. 27 Fri. Mar. 31	§8.5: Differential Forms	<div>DROP DEADLINE</div>
Week 12 Mon. Apr. 3 Fri. Apr. 7	Wrap-up and Review	Homework #6

Reading Week Saturday February 18th – Sunday February 26th

Drop deadline Monday March 27th