

# Welcome to Math 317

Calculus IV

# Specifics

- Instructor: Jordan MacKenzie
- Email: [jordan.mackenzie@ubc.ca](mailto:jordan.mackenzie@ubc.ca)
- Office: N/A
- Zoom office hours: T/Th 14:30-16:00
  - A Zoom link will be sent to each student through CANVAS mail every Tuesday and Thursday morning.
- Common course webpage: CANVAS
- Section webpage:  
<https://blogs.ubc.ca/jmackenzie/>
- A list of course topics is given in the course outline on the webpage

# Topics

1. **Review:** scalars, vectors, vector operations and coordinate systems.
2. **Vector valued functions of one variable:** parametrized curves, velocity, acceleration, curvature and the normal, tangent and binormal vectors to curves.
3. **Vector valued functions of several variables:** Vector fields, line integrals, surface integrals, Green's theorem, Stoke's theorem and the divergence theorem.

## Course outline for Math 317 (Calculus IV) 2020 Summer, Term 2 July 6 – August 13, 2020

**Prerequisites:** One of Math 200, 226, 253.

**Credit:** 3 Credits

**Instructor:** Jordan MacKenzie, Office: PPC 219, Zoom office hours: T/Th 14:30-16:00

**Home Page:** [Jordan MacKenzie](#)

**Assessment:** The final grades will be based on 4 assignments (3% each), 1 midterm (30%), 1 take-home quiz (8%) and one final exam (50%). **Note that the exam date is set by Enrolment Services. Please do not plan travel before you know the exam date.**

**An alternative way to compute your final grade is:** Final Exam Grade (out of 100) - 10. You will be awarded the higher of these two possible grades. Final grades may also be scaled in keeping with historical grade distributions in Math 317.

**Test Dates:** Midterm - July 23, 2020, Take-home quiz - August 11, 2020

**Text:** Feldman and Rechnitzer, [Course Textbook](#). This textbook is online and free.

### Topics:

1. **Vector valued functions of one variable:** Parametrized curves, velocity, acceleration, arc length. Includes curvature, normal and binormal vectors and the tangential and normal components of acceleration.
2. **Vector valued functions of several variables:** Vector fields, line integrals, conservative fields, fundamental theorem of line integrals, Green's theorem, gradient, curl, divergence, parametrized surfaces, surface area, surface integrals, Stoke's theorem and divergence theorem.

### Course Policies:

1. No unauthorized devices will be allowed during any quiz or examination. This includes cell phones, smart phones, music players, and all other devices. **Formula sheets and other memory aids will not be allowed.**
2. There are no make-up midterms in this course. Missing the midterm for a valid reason normally results in the weight of that midterm being transferred to the final exam.
3. Missing the Final Exam: You will need to present your situation to the Dean's Office of your Faculty to be considered for a deferred exam. See the Calendar for detailed [regulations](#). Your performance in a course, up to the exam, is taken into consideration in granting a deferred exam status (e.g. failing badly generally means you won't be granted a deferred exam). In Mathematics, generally students sit the next available exam for the course they are taking, which could be several months after the original exam was scheduled.
4. While students are encouraged to study together, they should be aware that blatant copying of another student's work is a serious breach of academic integrity. Please discuss with your instructor his expectations for acceptable collaboration on any assigned coursework. Cases of suspected cheating will be investigated thoroughly for assignments, take-home quizzes, etc.

**Statement on UBC's Policies and Resources to Support Student Success:** UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious and cultural observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available [here](#).

# Textbooks

**Feldman and Rechnitzer (required):**

[http://www.math.ubc.ca/~CLP/CLP4/clp\\_4\\_vc.pdf](http://www.math.ubc.ca/~CLP/CLP4/clp_4_vc.pdf)

**Additional resources (not required)**

Stewart, James (2015). *Multivariable Calculus, 8<sup>th</sup> Edition*.  
Brooks Cole.

# Grades

- Final Exam: 50%.
- 4 assignments: 3% each. There will be no make up assignments.
- 1 midterm: 30%. There will be no make up midterms.
- 1 take-home quiz: 8%. There will be no make up take-home quizzes.

# Course Structure

- I will post a set of course notes before every lecture (Monday – Thursday at 10 am). These lecture notes will be posted on CANVAS and my personal webpage.
- I will post an additional whiteboard session after every lecture (Monday – Thursday at 12 pm). The whiteboard sessions are either problem based sessions or discussions on key points related to the theory. **Make sure to view the whiteboard video AFTER you read through the lecture notes. The videos will ONLY be available on CANVAS.**
- Assignments, midterms and the take-home quiz will be posted on CANVAS and **MUST** be submitted through CANVAS.