

MATH 216 (Fall 2021), *Introduction to Analysis*

CAB 239, TR 9:30–10:50.

Instructor

Volker Runde

Office hours

CAB 675, MWF 11:00–11:50 or by appointment (*E-mail*: vrunde@ualberta.ca), if necessary via Google meet.

Course content

Sets and functions. Induction. Axiomatic introduction of the real numbers. Sequences and series. Continuity and properties of continuous functions. Differentiation. Riemann integral.

Course goals

This course is intended for students who have taken first year non-honors calculus. The material covered is pretty much the same as in a usual first year calculus course, but from an in-depth point of view. Its goal is to develop the theoretical underpinnings of calculus. Students will learn techniques of proof, e.g., induction, ϵ - δ -arguments, indirect proofs, and how to conduct simple proofs themselves.

Texts

There is no required text, but

KENNETH A. ROSS, *Elementary Analysis*, Second Edition. Springer Verlag, 2013.

is recommended. I will closely follow my lecture notes, which are available through e-class and also through the course webpage at

<http://sites.ualberta.ca/~vrunde/files/notes216.pdf>.

Grading

The mark will be based on (approximately) weekly homework assignments (25%), *the better mark of two in-class-midterms on October 5 and November 2, each*, (25%), and a final (50%). A total mark of 50% will yield a letter grade of D or better, and

a total mark of 90% will yield a grade of A (or better). Solutions to the homework have to be placed into the marked assignment box on the third floor of CAB.. Prior to both the midterm(s) and the final, practice midterm(s)/final will be made available. If the midterm is missed for a valid reason¹² according to the calendar, its weight will be transferred to the final; if the final is missed for a valid reason according to the calendar, a deferred exam will be given at a time and place to be announced. The homework assignments, solutions to them and to the (practice) exams will be made available through e-class and the course webpage at

<https://sites.ualberta.ca/~vrunde/math216.html>.

Statements required by calendar

- Policy about course outlines can be found in §23.4(2) of the University Calendar.
- The University of Alberta is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Code of Student Behavior (online at www.governance.ualberta.ca) and avoid any behavior which could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offense. Academic dishonesty is a serious offense and can result in suspension or expulsion from the University.
- Audio or video recording of lectures, labs, seminars or any other teaching environment by students is allowed only with the prior written consent of the instructor or as a part of an approved accommodation plan. Recorded material is to be used solely for personal study, and is not to be used or distributed for any other purpose without prior written consent from the instructor.

Particular issues arising through the current pandemic situation

Please, review the following information:

<https://www.ualberta.ca/covid-19/media-library/fall-2021-guide-on-campus-students.pdf>.

In particular, please, wear a mask in class and when you come to my in-person office hours.

¹If that reason is religious conviction, you must inform me before the end of the second week of classes.

²Oversleeping is *not* a valid reason.