Advanced Calculus IV - Math 2144

Instructor

Iddo Ben-Ari

Contact: talk to me before/after lecture, office hours, and Piazza (link on the left).

Please try to use Piazza. My email if needed is iddo.ben-ari@uconn.edu

---

Meeting

Lectures MWF 10:10-11:00 MONT225

"Discsussion" 11:15-12:05PM OAK301

Office hours

• W 11:15, F 9:00,Piazza, or by appointment.

Grade

1. 12% Active Participation in class.
2. 14% 10 Quizzes on Fridays. Grade is average of best 8.
3. 20% 10 "Weekly" assignments posted on Fridays, due on Monday 10 days later. Grade is best 8.
4. 18% Exam I - In class, fifth week on Friday.
5. 18% Exam II - Take home, tenth week on Friday (posted at noon, due Sunday 11:59pm).
6. 18% Exam III - Hybrid, fourteenth week, 50% during last Friday discussion; and 50% take home (same as Exam II).

There is no final exam.

As a general rule, I do not accept late work or offer makeup. Exception: Documented extenuating circumstances.

Material

Our textbook is.

Calculus II by Tom Apostol, 2nd ed.

Having a physical copy of the book is not required.

The course will be self contained.

At the core, we will cover the following chapters in the textbook:

Ch. 8 Differential Calculus of Scalar Fields (3 weeks)
8.1-8.4 Scalar and vector fields, limits, continuity.
8.6-8.10 Directional Derivatives.
8.11-8.15 Gradient, differentiability and the chain rule.
8.16-8.18 Applications and derivatives of vector fields.
Ch. 10 Line Integrals (2 weeks)
10.1-10.6 Line integrals.
10.7-10.10 Line integral wrt arc length and FTC for line integrals
Ch. 11 Multiple integrals (4 weeks)
11.1 -11.6 Double integrals of rectangles, upper and lower, evaluation by iteration.
11.7, 11.10,11.13 Integrability of functions, integrals over general regions, and applications.
11.19-11.23 Green's Theorem
11.26 - ... Change of variables.
Ch .12 Surface Integrals (3 weeks)
12.1-12.5 Surfaces and their areas.
12.7- 12.11 Surface integrals and Stokes' Theorem
12.12-12.15 Curl and Divergence.
12.18-12.19 Extension to Stokes' and Divergence Theorem
Additional Topics (2 weeks)

- Fixed Point Theorem
- Inverse Function Theorem
- Implicit Function Theorem

We may omit certain sections, and may add some supplementary material. Notation and presentation may differ from notation in book.

Grade-related course policies.

• Electronic devices and notes of any kind are not allowed in in-class quizzes and exams.

• Letter conversion: ≥93% A;≥90% A–;≥87% B+;≥83% B;≥80% B–;...;<60% F

Academic integrity

I'm quite sure we won't have to deal with it, but just in case:

• UCONN policies.

• Please contact me if you have any questions or problems to report.

General

Students with disabilities? Please let me know and we will work with CSD.

• Other important UCONN policies.

• Not sure about anything? Contact me.

Wishing you success in this course!