

MATH 2000 – Fall 2019/Winter 2020

Calculus and Introductory Analysis II

Instructor: Jason Crann

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Office Hours: TBD

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Course Dates: Sep. 04, 2019 – Dec. 06, 2019 and Jan. 6 – Apr. 7, 2020

Lectures: Tuesday/Thursday, 8:35–9:55, University Centre 282(F) & Southam Hall 404(W)

Tutorials: Tuesday, 11:35–12:25, Tory Building 236(F) & Southam Hall 316(W)

TA: Zachary Zanussi (zaczanussi@cmail.carleton.ca)

Representative Textbook: *Advanced Calculus*, by Gerald B. Folland.

Evaluation:

- Assignments - 20%;
- Tests - 15%;
- Mid-year exam - 15%;
- Final Exam - 50%.

Prerequisites:

- Calculus: MATH 1002 (C+) or MATH 2007 or MATH 1005 with a grade of B+ or higher and permission of the School.
- Algebra: MATH 1102 (C+) or MATH 1107 or MATH 1104 with a grade of B+ or higher.
- Mathematical Reasoning: MATH 1800 (C+) or permission of the School.

Approximate Course Outline:

- Euclidean space: vectors, geometry, open sets, continuous functions, compactness, path connectedness.
- Differential Calculus: partial derivatives, differentiability, mean value theorem, Taylor polynomials, critical points, extreme value problems, Lagrange multipliers.
- Implicit and inverse function theorems, applications.
- Integral Calculus: measurability, multiple and iterated integrals, transformations and change of variable formula, cylindrical and spherical coordinates.
- Vector Calculus: parametric curves and surfaces, line integrals, Green's theorem, surface integrals, divergence theorem, Stokes' theorem, applications.

Standards/Expectations:

- Students are expected to attend classes and tutorials. It is your responsibility to obtain any missed lecture notes/tutorials from your colleagues. Lecture notes will not be posted online.

- Students are encouraged to discuss assignment questions amongst themselves, but independent solutions are expected upon submission.
- Rigorous, fully detailed mathematical arguments are required for full marks on assignments/tests. Late assignments and/or missed examinations will not be accommodated without official, signed medical documentation.

Deferred Exam: Students who miss the final exam may be eligible for a deferral. Application for a deferral must be made, with appropriate documentation, to the Registrar's Office within five business days of the examination.

Requests for Academic Accommodation:

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

- **Pregnancy obligation:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf
- **Religious obligation:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf
- **Academic Accommodations for Students with Disabilities:** If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc
- **Survivors of Sexual Violence:** As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support
- **Accommodation for Student Activities:** Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>