

Math 2XX3 / Advanced Calculus II / Summer 2018

INSTRUCTOR

Homayun Karimi
HH303

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WEBSITE

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OFFICE HOURS

Mondays and Wednesdays, 5-6:30 pm.

LECTURES

Mondays and Wednesdays, 7-10 pm in HH / 305.

The content of the lectures is the content of the course. You are expected to attend all lectures, and it is your responsibility to obtain lecture notes from a classmate in case of absence.

COURSE

- **Custom Courseware.**

REFERENCES

- **Fourier Series.** Georgi P. Tolstov, Dover Publications.

OBJECTIVES:

We will combine calculus and linear algebra, to study multivariable calculus. The emphasis will be on precise definitions of the main concepts of calculus. Then we will study the geometry of smooth curves in the space. We will introduce computational tools, to measure the curvature of a curve (how much they are curved). We will also try to solve some nonlinear system of equations. Then we will use our knowledge about eigenvalues, to study the local behavior of multivariable functions. Calculus of variation, will show us a path into a world of infinite dimensions. Fourier series, will help us to find orthogonal bases for function spaces, also we will use them to compute the exact value of some numerical series.

TOPICS

- **1) Limit, Continuity, and the Derivative.**
- **2) Differentiable Curves in Space.**
- **3) The Inverse and Implicit Function Theorems.**
- **4) Taylor's Theorem and Local Extrema.**
- **5) Introduction to the Calculus of Variations.**
- **6) Fourier Series.**

MARKING SCHEME

- Assignments, 25%
- Midterm, 35% (Monday, July, 9)
- Final Exam, 40% (Wednesday, August, 1)

Notice that, the dates for the midterm and final exam, are tentative. Assignments should be handed in, at the beginning of the lecture, and the due times will be announced on the website of the course, or during the lectures. Location, exact time and duration for the midterm and final exam will be announced in class at least one week prior, and on the course website. The students must bring their McMaster student ID card to the midterm and final exam. The final exam will be 2.5 hours long, and will be written during class time.

CALCULATORS

No calculator will be needed, and none will be allowed.

EXCUSED

ABSENCES

Please consult the following web-page:
http://academiccalendars.romcmaster.ca/content.php?catoid=13&navoid=2208#Requests_for_Relief_for_Missed_Academic_Term_Work

ACADEMIC
INTEGRITY

You are expected to exhibit honesty and use ethical behavior in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behavior can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: Grade of F assigned for academic dishonesty), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on various types of academic dishonesty, please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>

STUDENT
ACCESSIBILITY
SERVICES

Students who require academic accommodations, must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140, ext. 28652 or e-mail sas@mcmaster.ca. For further information, consult McMaster University's Policy for Academic Accommodation of Students with Disabilities.

DISCLAIMER

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the students to check their McMaster email and course websites weekly during the term and to note any changes.