Math 2X03: Advanced Calculus I
2018 Spring/Summer Term: Session 1

Lectures: Tuesdays and Thursdays from 7:00 pm to 10:00 pm at TSH B106.

Instructor:

Changliang Wang

Office: Hamilton Hall 319

Office Hours: Tuesday and Thursday from 5:30 pm to 6:30 pm, or by appointment via email.

Email: wangc114@math.mcmaster.ca

Phone: (905) 525-9140 x 23403

Course Web-page: to be announced in class

Required Text: J. Stewart, Calculus: Early Transcendentals, (8th edition), Brooks/Cole. There is also an optional student study guide which may be helpful.

Course Objectives: In this course we will first study multiple integrals and their applications, and then use them to define integrals of vector fields (over curves and surfaces) which are independent of parametrization. These vector integrals are used in turn to study the generalizations of the fundamental theorem of calculus to higher dimensions: the theorems of Green, Stokes and Gauss. The theory will be illustrated by applications.

Assignments:

A total of 5 Assignments are scheduled this term. The best 4 grades will be counted toward your final grade.

Assignments are tentatively scheduled to be due each Thursday (end of class) in the drop-off boxes, located on the 1st floor of Hamilton Hall (near HH 105), or be given to me in-person, by the end of class on the day they are due. Assignments deposited after 10:00 pm into the 2X3 boxes **will not be collected or marked**.

Mid-Term Tests and Final Exam:

There will be two **tests** held **during lecture periods**. The tentative dates and time are

Test I: 7:00 pm - 8:00 pm on **May 15, 2018** (Tuesday), **location TBA**;

Test II: 7:00 pm - 8:00 pm on **May 29, 2018** (Tuesday), **location TBA**.

The topics covered in the two tests will be announced in class and posted on the course web-page.

The **final exam** will be on the last day of class (7:00 pm - 9:30 pm on **June 14, 2018**), **location TBA**. This 2-hour 30-minute final exam will test **cumulative** knowledge.

The **locations for both tests and the final exam** will be announced in class and on the course web-page.

Only the **Casio FX 991MS or MS Plus calculator** may be used during the tests and the final exam.

Students **must** bring their **McMaster ID** cards to the tests and final exam for inspection.

Grading Scheme:

Your final mark will be the higher of the following two computations:

(1) 4 best of 5 assignments (20%), 2 tests (30%), final exam (50%),

(2) final exam (100%).

Your final mark will then be converted to a letter grade using a scheme similar in spirit to that published in the Undergraduate Calendar.

See section (a) below for the adjusted grading scheme in cases of medical and other exemptions.

Important message: 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 the changes. **It is the responsibility of all students to check their McMaster email accounts and course webpages weekly during the term and to note any changes**.

Student Accessibility Services: Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Co-ordinator. 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.

Policy regarding Homework and Tests:

(a) **MSAF Policy**

If you have missed work, it is your responsibility to take action. If you are absent from the university for a minor medical reason, **lasting fewer than THREE days**, you may report your absence, once per term, without documentation, using the McMaster Student Absence Form. Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation, and relief from term work may not necessarily be granted. Note that the MSAF **may not be used for term work worth 25% or more**, nor can it be used for the final examination. Please note! Once a final examination is written, the final grade cannot be adjusted to take into account any special situation.

For Math 2X3, the composition of computation (1) for your final mark will then be changed as follows. The percentage of an excused test or written assignment will be transferred and added to that of the final exam.

(b) **Academic Ethics**

You are expected to exhibit honesty and use ethical behaviour 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 behaviour 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 the various types of academic dishonesty please refer to the Academic Integrity Policy, located at http://www.mcmaster.ca/academicintegrity/ The following illustrates only three forms of academic dishonesty:

(ii) Plagiarism, e.g., the submission of work that is not one's own or for which other credit has been obtained.

(ii) Improper collaboration in group work.

(ii) Copying or using unauthorized aids in tests and examinations.

(c) **Collaboration in Homework Assignments**:

Discussions about homework assignments are allowed and are generally beneficial. However, you must write up the solutions of the assignment problems **by yourself and in your own words**. Copying with minor changes (e.g. with symbols changed, or with slightly different wording) from solutions prepared by another person, publication, or website, in whatever format, will be dealt with as an act of plagiarism.

Rough Course Schedule:

Week	Topics	Sections
April 30	double integral	15.1-15.5
May 7	triple integral	15.6-15.9
May 14	vector fields, line integrals (Test 1 on May 15)	16.1-16.3
May 21	Green's Theorem, derivatives of vector fields	16.4-16.5
May 28	parametrized surfaces, surface integrals (Test 2 on May 29)	16.6-16.7
June 4	Stoke's Theorem, Divergence Theorem	16.8-16.9
June 11	Review on June 12 (Final Exam on June 14)	