Geometry

MATH 3B03 - Fall 2017

Objectives

Students will learn the concepts of smooth curves and surfaces in Euclidean 3-space, and how to extract information about them using geometric reasoning and a combination of techniques from multivariable calculus and linear algebra. As an introduction to geometry, this course can offer a good preparation towards more advanced courses on smooth manifolds and their differential geometry.

Topics

Topics will include smooth curves, curvature and torsion, smooth surfaces, fundamental forms, isometries and conformal maps, Gauss and mean curvature, geodesics. Time permitting we will explore other topics such as the Gauss-Bonnet theorem, hyperbolic geometry, and minimal surfaces.

Instructor

Name	Federico Galetto
E-mail	galettof@math.mcmaster.ca
Location	Hamilton Hall 407
Office hours	Monday 14:30 - 15:30, Wednesday 9:30 - 10:30 (or by appointment)

Lectures

Monday	8:30 - 9:20, Hamilton Hall 305
Wednesday	8:30 - 9:20, Hamilton Hall 305
Friday	10:30 - 11:20, Hamilton Hall 305

Textbook

Pressley, Andrew. *Elementary differential geometry.* Second edition.
Springer Undergraduate Mathematics Series. Springer-Verlag London, 2012. ISBN: 978-1-84882-890-2

The electronic version of the textbook can be downloaded from the McMaster University Library. Both the paper and the electronic version are suitable for the course.

Calculators

The McMaster standard calculator is the Casio fx-991 MS or Casio fx-991 MS Plus. This is the only calculator allowed during tests and exams.

Grading Scheme

Your grade will be determined according to the following scheme.

Assignments	20%
Tests	30%
Final Exam	50%

Your letter grade will be computed using the Grade Point Values conversion table as specified by the Office of the Registrar.

Assignments

There will tentatively be four written homework assignments. Due dates will be announced in class and on the course website. You are expected to submit a paper copy of each assignment by the due date. Late submissions and electronic submissions will not be accepted. Your submissions must reflect your own independent work on the assignments, and must adhere to the standards and practices described in the section on Academic integrity. Please see below for using an MSAF on a homework assignment.

Tests and Final Exam

There will be two tests (tentative dates: Friday, September 29, and Friday, November 17) held in class during the lecture period. Topics covered will be announced in class and on the course website. Please see below for using an MSAF on a test.

There will be one cumulative final exam with an expected duration of 2.5 hours. Date and location of the final exam are determined by the Office of the Registrar, and will be announced in class and on the course website.

You are required to bring your student ID to all tests and exams.

Relief for Missed Academic Term Work (MSAF)

The University recognizes that students periodically require relief from academic work for medical or other personal situations. Relief for missed academic work worth less than 25% of the final grade resulting from medical or personal situations lasting up to three calendar days can be obtained using the Mcmaster Student Absence Form (MSAF) on-line self-reporting tool. Please familiarize yourself with the relevant policies.

There is no need to contact your instructor when using an MSAF in this course. When using an MSAF on an assignment or test, your grade will be recorded as 'MSAF'. This recognizes that your MSAF has been received by your instructor. Please allow one week after submitting your MSAF for the grade to be recorded correctly. You are required to contact your instructor only in the event that your grade is not recorded as 'MSAF' within one week of your submission.

When using an MSAF on an assignment, the weight of the assignment will be transferred to the weight of the next test or exam. When using an MSAF on a test, the weight of the test will be transferred to the weight of the final exam.

Accommodations

Students who require academic accommodation 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.

Academic Integrity

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.

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

Important Message About Course Modifications

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 student to check their McMaster email and course websites weekly during the term and to note any changes.
