MATH 458 Honours Differential Geometry, Winter 2024

a. **Course description:** The goal of the course is to provide a motivated introduction to the differential geometry of curves and surfaces in 3-dimensional Euclidean space $\mathbf{E^3}$. We will cover both the intrinsic and extrinsic geometry of surfaces, leading to such key local and global results as the Theorema Egregium of Gauss and the Gauss-Bonnet Theorem.

b. **Lectures**:

Tuesdays and Thursdays from 16h05 to 17h35 in BH 1104, first lecture on Thursday January 4, 2024, last lecture on Tuesday April 9, 2024.

c. **Office hours**:

Office hours will be held on Thursdays from 13h00 to 14h00 in BH 924, or by appointment.

d. **Method of evaluation**:

There will be **4 assignments**, each worth 5% of the final mark, **one midterm**, worth 30% of the final mark, and a **final examination** worth 50% of the final mark. **The date of the midterm is Wednesday March 13, from 6h00PM to 8h00PM (room location TBA)**.

Schedule of assignments:

- **Assignment 1**: Posted on Crowdmark on Friday January 26, due for submission on Crowdmark by Friday February 2 at midnight.

- **Assignment 2**: Posted on Crowdmark on Friday February 16, due for submission on Crowdmark by Friday February 23 at midnight.

- **Assignment 3**: Posted on Crowdmark on Friday March 15, due for submission on Crowdmark by Friday March 22 at midnight.

- **Assignment 4**: Posted on Crowdmark on Friday March 22, due for submission on Crowdmark by Friday March 29 at midnight.

e. **Course Instructor**: Prof. Niky Kamran, niky.kamran@mcgill.ca, www.math.mcgill.ca/nkamran.

f. **Recommended Textbook**: Manfredo P. do Carmo, *Differential geometry of curves and surfaces*, Dover publications, 2016, available as a free e-book from the McGill library. I will also upload my personal course notes notes on My Courses, **but these are not meant for distribution**.

g. **McGill policy statements**:

1. McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest/ for more information).
2. In accord with McGill University's Charter of Students Rights, students in this course have the right to submit in English or in French any written work that is to be graded.
3. Instructors who may adopt the use of text-matching software to verify the originality of students' written course work must register for use of the software with Educational Technologies and must inform the students before the drop/add deadline, in writing, of the use of text-matching software in a course.
4. If you are registered with the Office of Student Accessibility and Achievement, and you believe you need special accommodations given the format of this course, please contact the instructor advance.