

**MATH 480 (MAST 657/MAST 857), Sec. A**  
Geometry & Topology  
*Fall 2023*

**Instructor:** Dr. A. Stancu, Office: LB 921-27 (SGW), Phone: 848-2424, Ext. 5345  
Email: [alina.stancu@concordia.ca](mailto:alina.stancu@concordia.ca)

**Class Schedule:** Mondays & Wednesdays, 10:15-11:30.

**Office hours:** Mondays, 1:00-2:30 p.m.

**Required Textbook:** *Elementary Differential Geometry*, by A. Presley Springer (Second Edition) ISBN 978-1-84882-890-2 (softcover) or ISBN 978-1-84882-891-9 (e-book).

The textbook is available online as electronic resource at Concordia's library.

In addition, graduate students have: *Differential Geometry: Curves – Surfaces – Manifolds* by Wolfgang Kühnel (Second edition).

**Other material:**

- Differential geometry of curves and surfaces by M.P. do Carmo
- Differential geometry of curves and surfaces by Kristopher Tapp
- Differential geometry by Theodore Shifrin (e-resource)
- Riemannian geometry by M.P. doCarmo (for MSc/PhD students)
- Riemannian manifolds by John M. Lee (for MSc/PhD students)

**Topics:** The following topics outline the content of the lectures: surfaces in three dimensions, the first and second fundamental forms of surfaces, curvatures of surfaces (principal, Gaussian, and mean curvature), geodesics, Gauss' Theorema Egregium, the Gauss-Bonnet theorem.

Graduate students will complement this content by guided independent study of Riemannian geometry on manifolds or other topics at the instructor's recommendation depending on individual mathematical interests, current background, and areas of study.

**Final Grade:** Homework 20%, Midterm Evaluation 30%, Final Evaluation 50%.  
**Undergraduate and graduate evaluations will differ in content.**

The homework will be assigned approximately every two weeks, during class, and posted on Moodle. In case of a student's absence or late arrival, it is the student's responsibility to seek the assignment online and submit it on time. **No late assignments will be accepted.**

**The midterm exam is scheduled for Wednesday, October 25th in class. Please be aware that a missed test cannot be made up.**

If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.

#### **Academic Integrity and the Academic Code of Conduct**

This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: [concordia.ca/students/academic-integrity](http://concordia.ca/students/academic-integrity)." [*Undergraduate Calendar, Sec 17.10.2*]

#### **Behaviour**

All individuals participating in courses are expected to be professional and constructive throughout the course, including in their communications.

Concordia students are subject to the [Code of Rights and Responsibilities](#) which applies both when students are physically and virtually engaged in any University activity, including classes, seminars, meetings, etc. Students engaged in University activities must respect this Code when engaging with any members of the Concordia community, including faculty, staff, and students, whether such interactions are verbal or in writing, face to face or online/virtual. Failing to comply with the Code may result in charges and sanctions, as outlined in the Code.

#### **Intellectual Property**

Content belonging to instructors shared in online courses, including, but not limited to, online lectures, course notes, and video recordings of classes remain the intellectual property of the faculty member. It may not be distributed, published or broadcast, in whole or in part, without the express permission of the faculty member. Students are also forbidden to use their own means of recording any elements of an online class or lecture without express permission of the instructor. Any unauthorized sharing of course content may constitute a breach of the [Academic Code of Conduct](#) and/or the [Code of Rights and Responsibilities](#). As specified in the [Policy on Intellectual Property](#), the University does not claim any ownership of or interest in any student IP. All university members retain copyright over their work.

#### **Extraordinary circumstances**

In the event of extraordinary circumstances and pursuant to the [Academic Regulations](#) the University may modify the delivery, content, structure, forum, location and/or evaluation scheme. In the event of such extraordinary circumstances, students will be informed of the change.