

# **ESCI 365**

## **Geomorphology and Quaternary Geology**

**Instructor:** Matthew (Matt) Schumacher, PSC 2035, 867-5184, [mschumac@stfx.ca](mailto:mschumac@stfx.ca)

**Office Hours:** Tuesdays (9am-11pm); Fridays (10am–12pm); or by appointment

**Lectures:** PSC 3035, C-block (Monday 10:15; Wednesday 9:15; Friday 8:15)

**Labs:** PSC 1096, Thursdays 2:15

### **Introduction**

The objective of this course is to introduce students to how gravity, water, wind and ice create, shape and alter the Earth's surface over the last 2.5 million years. Students will learn to describe, visualize and understand how these surficial geological processes create many landforms that, when combined, create our natural landscape.

### **Topics will include:**

1. Weathering and Erosion
2. Soils
3. Slope Processes
4. Glaciers, Glaciation and Glacial Landforms
5. Ice Ages
6. Fluvial Features
7. Aeolian Processes and Landforms
8. Coastal Geomorphology

### **Grading:**

- Mid-term exam: 20%
- Final exam: 30%
- Lab Assignments: 25%
- Publish or Perish Exercise: 25%

### **Important Dates:**

- First class – January 6<sup>th</sup>
- Midterm – February 19<sup>th</sup>
- Reading Week – February 24<sup>th</sup>-28<sup>th</sup>
- Last Class – April 4<sup>th</sup>
- Good Friday – April 18<sup>th</sup>

## **Text and Readings**

There is an assigned textbook that is required for this course. The text that will be used is Geomorphology – A Canadian Perspective 5<sup>th</sup> Ed. by Alan S. Trenhaile. © 2013 Oxford University Press. A copy of the text is on reserve at the Library. Students are responsible for the following readings:

**Week 1:** *Driving and Resisting Forces* Ch.2 pp. 24-33, 45-60

**Week 2:** *Weathering and Soils* Ch.4 pp. 97-129

**Week 3:** *Slope Form and Processes* Ch.5 pp. 131-163

**Week 4:** *Glaciers and Glacial Processes* Ch.6 pp. 165-199

**Week 5:** *Glacial Sediments and Landforms* Ch.7 pp. 200-239

**Week 6:** *Ice Ages and Ice Sheets* Ch.8 pp. 240-271

**Week 7:** No reading assignment - Midterm Study

**Week 8:** Reading Week - Catch up on your reading assignments!

**Week 9:** *Fluvial Processes* Ch.10 pp. 307-340

**Week 10:** *Fluvial Landforms* Ch.11 pp. 341-380

**Week 11:** *Aeolian Processes and Landforms* Ch.12 pp. 381-402

**Week 12:** *Coastal Processes* Ch.13 pp. 403-431

**Week 13:** *Coastal Landforms* Ch.14 pp. 432-466

## **Lab Exercises:**

Lab exercises are designed to increase your understanding of geomorphological processes and working with various types of geospatial data. Students are expected to incorporate background information about assigned topics obtained from readings on the subject into lab reports. Web-based articles and materials that are not obtained from peer reviewed journals or books will not be considered acceptable sources of information. Students must rely upon texts and reviewed journal articles obtained through the library resources. Students are expected to have a basic working knowledge of office productivity software (i.e. MS Word, MS Excel, etc.) and understanding of topographic maps. Lab reports must follow the formal written structure outlined in class.

## **Publish or Perish Exercise**

Publish or perish is a phrase commonly heard throughout academia that refers to the pressure researchers endure to continually publish the results of their research. Frequent publication is often used in many disciplines as a benchmark to demonstrate academic talent. This exercise will simulate the process of writing an academic paper and submitting it to an academic journal which will include an outline, first submission, editing and second submission of a paper on a topic of their choice in the fields of Quaternary geology and geomorphology.

**Policy on Academic Integrity:**

All members of St. Francis Xavier University are expected to conduct themselves in an ethical manner in their academic work. It is the policy of the University that academic dishonesty in any form is not acceptable. Academic dishonesty is defined as any act, practice or behaviour that gives a student an unearned academic advantage over another or that counteracts or undermines the integrity of academic or scholarly endeavour at St. Francis Xavier University.

Please refer to [http://sites.stfx.ca/registrars\\_office/academic\\_integrity](http://sites.stfx.ca/registrars_office/academic_integrity) for more information.

**Statement on Equitable Learning:**

Everyone learns more effectively in a respectful, safe and equitable learning environment, free from discrimination and harassment. I invite you to work with me to create a classroom space—both real and virtual—that fosters and promotes values of human dignity, equity, non-discrimination and respect for diversity. These values and practices are in accord with the StFX Discrimination and Harassment Policy which can be found at <http://www.mystfx.ca/campus/stu-serv/equity/>.

Please feel free to talk to me about your questions or concerns about equity in our classroom or in the StFX community in general. If I cannot answer your questions or help you address your concerns, I encourage you to talk to the Chair/Coordinator of the Department/Program or the Human Rights and Equity Advisor, Marie Brunelle at [mbrunell@stfx.ca](mailto:mbrunell@stfx.ca).