

**Faculty of Science Course Syllabus** (revised August 2020)  
**Department of Earth and Environmental Sciences**  
*Tectonics, EARTH 4350 and EARTH 5350*  
*Fall Term 2020*

**Instructor(s):** Djordje Grujic                                  dgrujic@dal.ca                                  LSC 3045

**Lectures:**            Tuesday, Thursday (1:05-2:25)    **Synchronous Online Classes**

**Laboratories:**    n/a

**Tutorials:**            n/a

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### **Course Description**

*This is a required course for Earth Sciences honours students. It is intended to synthesize the various aspects of geology covered in the third year core program. The focus of the course is on tectonic processes and the ways in which these processes create and modify the Earth's crust. We cover the fundamental geological, geophysical, and geochemical controls that operate today, including plate tectonics, and the ways in which these might have differed in the geological past.*

### **Course Prerequisites**

*ERTH 2270.03, EARTH 3140.03*

*Recommended: third year core program courses*

### **Required Course Materials**

- *Textbook*  
*Global Tectonics*  
*By: Philip Keary, Keth A Klepeis, Frederick J Vine*  
*eBook*  
<http://ca.wiley.com/WileyCDA/WileyTitle/productCd-EHEP002358.html>  
*OR*  
*Plate Tectonics. Continental Drift and Mountain Building*  
*By: Frisch, W., Meschede, M., Blakey, R. C.*  
*eBook by Springer*  
<http://www.springer.com/earth+sciences+and+geography/geology/book/978-3-540-76503-5>
- *Labs: n/a*

### **Course Structure**

Our course is organized into 12 weekly modules.

Most weekly modules will include:

- short video lectures
- article readings and synchronous discussion
- asynchronous learning activities
- graded assignments

Attend the “Welcome” lecture that describes how learning will be facilitated in our class, what technology we’ll use, and where you can find important course elements in Brightspace.

We’ll be using the following platforms in the course:



**Brightspace** - The learning management system, Brightspace, is our classroom space! This is where you’ll find the class announcements, weekly modules, video lectures, course readings, dropbox for submitting assignments, and discussion boards for questions and assignments.



**Collaborate Ultra**- The conferencing platform, Collaborate, is a meeting space! Each group will have a designated “meeting room” for discussions and you can meet me in Collaborate by appointment.

Dalhousie email is the University’s primary communication tool.

### **Technical Requirements**

- Laptop, desktop computer or tablet with microphone and webcam
- Internet with fast connection. During the lectures do not use other applications using internet. Reduce background noise and distractions.
- Software: Microsoft Office

### **Technology Support**

If you require support for the course or university technologies (Brightspace, Collaborate Ultra, email, Microsoft products) you can contact Information Technology Services (ITS) at [support@dal.ca](mailto:support@dal.ca)

**Course Assessment**

- *Assignments: Tectonic data analysis and interpretation. 3, each 5%* 15%
- *In class discussions on a chapter or journal paper. 4, each 10%* 40%
- *Term Paper: TBD* 35%
- *Term paper presentation* 10%

Other course requirements

*Attend and participate in the lectures and related class discussions.*

**Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale**

A+ (90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
A (85-89)	B (73-76)	C (60-64)	F	(<50)
A- (80-84)	B- (70-72)	C- (55-59)		

**Course Policies**Assignments

Alternative dates will be offered for synchronous components missed due to technological malfunction or other circumstances beyond the student's control.

All the assignments are individual. However, students are allowed and encouraged to work together on paper discussions.

Term Paper

- The term paper **MUST** be submitted by **16:00 hours on December 1, 2020**.
- No late paper will be accepted.

Potential Causes of Failure

Term Paper may fail because it:

- Does not meet minimum scientific standards
- Contains serious errors in logic
- Does not meet minimum standards of English
- Lacks originality
- Is late
- Contain plagiarized material
- **Plagiarism detection software Urkund will be used in course**

**Course Content**

*This schedule is tentative. It may change to accommodate guest lecturers*

Week	Date		Topic	Chapter
2	September 8 September 10	Tue Thr	❖ Introduction to Class ❖ L2 Plate Movements	• 2
3	September 15 September 17	Tue Thr	❖ L3 Plate Driving Forces ❖ L4 Continental Grabens	• 3 • 3
4	September 22 September 24	Tue Thr	❖ L5 Magmatism in Rift Systems ❖ L6 Passive Continental Margins	• 4 • 4
5	September 20 October 1	Tue Thr	• <i>Assignment 1</i> ❖ L7 Ocean Basins	• 5
6	October 6 October 8	Tue Thr	❖ L8 Mid Ocean Ridges ❖ L9 Mantle plumes	• 6
7	October 13 October 15	Tue Thr	❖ L10 Mantle Dynamics I ❖ L11 Mantle Dynamics II	• 6
8	October 20 October 22	Tue Thr	• <i>Assignment 2</i> ❖ L12 Subduction zones	• 6
9	October 27 October 29	Tue Thr	❖ L13 Benioff zones ❖ L14 Subduction magmatism	• 7 • 7
11	November 3 November 5	Tue Thr	❖ L15 Exhumation of UHP terranes ❖ L16 Continental arc magmatism	• 7 • 7
10	November 09- November 13		<i>Study Break</i>	
11	November 17 November 19	Tue Thr	• <i>Assignment 3</i> ❖ L17 Collision orogens	• 11
12	November 24 November 26	Tue Thr		
14	December 1 December 3	Tue Thr	<b><i>Term Paper due by 4:00 PM</i></b> <b><i>Term Paper Presentation</i></b>	
	December 8		<i>Classes End, Exam Period begins</i>	

**Faculty of Science Course Syllabus (Section B) (revised June-2020)****Fall 2020***Tectonics, EARTH 4350 and EARTH 5350***University Policies and Statements**

**This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate**

**Missed or Late Academic Requirements due to Student Absence**

As per Senate decision instructors may not require medical notes of students who must miss an academic requirement, **including the final exam**, for courses offered during fall or winter 2020-21 (until April 30, 2021). Information on regular policy, including the use of the Student Declaration of Absence can be found here: [https://www.dal.ca/dept/university\\_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html](https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html).

**Academic Integrity**

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

**Information:** [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

**Accessibility**

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

**Information:** [https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)

**Student Code of Conduct**

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

**Code:** [https://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

**Diversity and Inclusion – Culture of Respect**

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

**Statement:** <http://www.dal.ca/cultureofrespect.html>

**Recognition of Mi'kmaq Territory**

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) ([elders@dal.ca](mailto:elders@dal.ca)).

**Information:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Important Dates** in the Academic Year (including add/drop dates)

[https://www.dal.ca/academics/important\\_dates.html](https://www.dal.ca/academics/important_dates.html)

**University Grading Practices**

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html)

## **Student Resources and Support**

### **Advising**

**General Advising** [https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

**Science Program Advisors:** <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

**Indigenous Student Centre:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Black Students Advising Centre:** [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

**International Centre:** [https://www.dal.ca/campus\\_life/international-centre/current-students.html](https://www.dal.ca/campus_life/international-centre/current-students.html)

### **Academic supports**

**Library:** <https://libraries.dal.ca/>

**Writing Centre:** [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

**Studying for Success:** [https://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

**Copyright Office:** <https://libraries.dal.ca/services/copyright-office.html>

**Fair Dealing Guidelines** <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

### **Other supports and services**

**Student Health & Wellness Centre:** [https://www.dal.ca/campus\\_life/health-and-wellness/services-support/student-health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html)

**Student Advocacy:** <https://dsu.ca/dsas>

**Ombudsperson:** [https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html)

### **Safety**

**Biosafety:** <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

**Chemical Safety:** <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

**Radiation Safety:** <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

**Scent-Free Program:** <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>