JEG100H1F – Introduction to Physical Geography and Earth Science

Fall 2017
University of Toronto
Departments of Earth Sciences and Geography

Instructor

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Course description

This introduction to Physical Geography and Earth Science examines the atmosphere, lithosphere, hydrosphere, cryosphere and biosphere, emphasizing processes, flows of energy and materials, and the interconnectedness of these Earth Systems. Specific topics include weather and climate, Earth materials, geological and geomorphic processes involved in the genesis of landforms, river systems, soils, glaciers and biomes. This courses consists of two one-hour lectures per week, and five two-hour laboratory sessions. This is a science course, and covers breadth area "Physical and Mathematical Universe" (#5). No specific pre-requisites are required. The course is designed to be accessible to any UofT student interested in the subject matter and willing to engage in some quantitative analyses and hands-on learning.

Course objectives

Upon completion of this course, students will gain competencies in the following areas:

- ☐ Understanding of Earth systems and recognition of the linkages between them
- ☐ Quantitative and spatial reasoning through analysis of data, graphs, maps and images
- ☐ Data handling (basic manipulation, plotting and analysis)
- ☐ By the end of the course, students will have gained a new appreciation for the diversity of processes taking place in the environment

Required reading

A custom textbook for JEG100 is available at the UofT Bookstore. This text is required for the course. Please purchase from the UofT Bookstore:

JEG100: Introduction to Physical Geography and Earth Sciences. Pearson Custom Library.

This book contains selected chapters from two textbooks:

Christopherson RW, Birkeland G, Byrne ML, Giles P. 2016. *Geosystems*, 4th Canadian Edition. Upper Saddle River, New Jersey, USA: Pearson.

Tarbuck EJ, Lutgens FK. 2015. *Earth Science*, 14th edition. Upper Saddle River, New Jersey, USA: Pearson.

Copies of both texts will be placed on reserve at the Noranda Earth Sciences Library. Previous editions of either text are also acceptable.

A note about the purpose of the reading: The textbook provides essential background and numerous examples to illustrate and explain the concepts we cover in class. You will not be tested on every single aspect of what is in the reading. Rather, the lecture material serves as a guide to what is most important to understand. Reading all of the required chapters is needed to help you to understand the material presented in lecture, and to answer effectively conceptual questions on the midterm and final exams. The textbook readings are required and I recommend you read the listed chapter once before lecture, think about it, make a list of questions. After lecture, re-read the chapter, and bring any outstanding questions to class next time or to my office hours.

Course Webpage

We will use Blackboard to distribute course notes and information. Students are responsible for checking Blackboard regularly for course updates, and for checking your UofT email where occasional announcements may be sent.

Lectures

Tuesdays and Thursdays, 2-3 PM, FG103 (FitzGerald Building, 150 College Street)

Your attendance at lecture is expected. Based on my observations after teaching this course for >10 years, your performance in the course will be greatly enhanced if you attend class. Lecture slides will be posted on Blackboard, but they do not contain all of the information covered in class. You are responsible for all material missed while you are absent from class.

Labs (= Practical or PRA sessions)

Lab Objectives. Five lab exercises have been designed to allow you to apply your knowledge from lecture and textbook reading. The labs are an opportunity to gain hands-on experience with analysis of Earth systems data, maps and Earth materials. *You will receive instructions on how to complete the lab during your lab session.*

There are five lab sessions this term (see the schedule on the last page). Labs do not meet every week. **The first labs will take place the week of September 18, 2017 (there are no labs Sept 7-8 or the week of Sept 11). Attendance at labs is required, and you must attend your assigned lab section.**

Use ROSI to sign up for lab sections and to determine the room location for your section. Updates and TA contact information will be posted on Blackboard during the first week of class.

Lab due dates are specified on the course outline. Labs 1 and 2 are due at the next meeting of your PRA section. Labs 3, 4 and 5 are due at the end of your PRA session, in other words Labs 3, 4 and 5 are in-class assignments and you must be in class to complete your lab.

Please note that labs 1 and 2 will be accepted up to 6 days late, but at a penalty of 5% per day. No extensions will be granted unless a valid UofT medical certificate is presented to document any illness (http://www.illnessverification.utoronto.ca/). Late assignments must be handed in to the drop box in the Earth Sciences Main Office, ES1066. The Department is locked after 5 PM sharp and on weekends so please plan accordingly. Make sure you clearly indicate the course code (JEG100) and your TA's name on your lab.

Evaluation

Labs	30% (There are 5 labs, each worth 6%; Labs 1 and 2 are due at the beginning of your next PRA meeting; Labs 3, 4 and 5 are in-class assignments, to be handed in at the end of the PRA session; see schedule overleaf)
Midterm test	25% (November 2, 2017). The midterm test includes material covered up to and including class on Oct 31, and material covered in Labs 1, 2 and 3. The test will consist of multiple choice, short answer questions and short application problems. A make-up midterm will only be considered for students who have valid documentation for medical illness, and who provide this within 5 days of the scheduled midterm test. Other students who miss the test will receive a 0.
Final exam	45% (during Faculty of Arts and Science exam period in December). The final exam covers the entire course and material on the labs. The format will be similar to that of the midterm test and to that of past exams for JEG100 and exclusions GGR100 and ESS102. Check the old exam repository: https://exams-library-utoronto-ca.myaccess.library.utoronto.ca/

Other Information

Student Resources. UofT is a big place but has a wealth of outstanding resources available to support student learning and improving student experience. Please visit:

http://www.studentlife.utoronto.ca/

This is your gateway and portal to the many services available to you including help with academic skill development, health and wellness, peer mentoring and networking, career planning, UofT for international students, work-life balance and recreational facilities on campus. If you need help, don't hesitate to ask for it. There is lots of help and support out there.

Accessibility. The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible. To better understand the scope of services offered, visit http://www.studentlife.utoronto.ca/as

Academic Integrity. Plagiarism is a very serious academic offense at the University of Toronto and academic offences will be dealt with accordingly. Academic integrity is at the core of our mission here at UofT. Our safeguarding of this fundamental value ensures that your UofT degree will be highly valued and respected. Every student must read the University's Code of Behaviour on Academic Matters (www.governingcouncil.utoronto.ca/policies/behaveac.htm). Examples of things which violate our code include, but are not limited to:

On labs and assignments:

- Using ideas or words from other people or other sources without proper credit and acknowledgement
- Submitting the same piece of work in more than one course without permission
- Obtaining unauthorized help on assignments. Please note that in JEG100, you may work in groups for some of the lab exercises, but each student must **independently** write up their own lab report. It is a serious academic offense to submit work under your own name that has been written by someone else.

On tests and exams:

- Using cell phones or other unauthorized aids
- Looking at another students' answers
- Permitting another student to look at your answers

Please remember the seriousness with which the University of Toronto treats academic dishonesty of any form. If you have any questions about what constitutes plagiarism or cheating, or how to uphold our core values of academic integrity, please speak to your instructor. Additional resources are available to you at the UofT's Academic Success Centre (http://www.studentlife.utoronto.ca/asc) and the UofT Writing Website (http://writing.utoronto.ca/) where you will find for example, a useful handout by Margaret Proctor titled "How not to plagiarize" (http://advice.writing.utoronto.ca/using-sources/how-not-to-plagiarize/).

Classroom etiquette. Lecture and lab sessions are valuable learning times. You will do best in this course if you concentrate on the subject matter during those times. Please respect your peers and do not use hand-held electronics for texting, social media, etc., in class. If you choose to use a laptop for note taking, please do so in a manner which will not distract your peers. Using your laptop for activities not related to the class constitutes such a distraction. There is some interesting literature suggesting that note taking with pen and paper is related to higher academic achievement than notetaking

with a laptop. Please see some of the papers placed on our course Blackboard page discussing this idea.

Email policy. Student questions are best answered during instructors' office hours, or before/after/during lab and lecture. Email may be used for logistical or yes/no questions. You will obtain a more satisfactory to your longer questions about course material and exams in person. **This includes your TA.** If you need to ask questions over email, we will make an effort to answer them *within 24-48 hours*. In order for us to do this, you must follow these instructions.

- Place JEG100 in the subject header.
- Send email using your UTORmail email account (see www.utorid.utoronto.ca)
- Consider email as a **formal and public** method of communication. Do not write anything that you do not want on the permanent, public record.
- Be professional when composing an email. Use proper grammar, spelling and full sentences. Please use an appropriate greeting (for example: "Dear Professor") and an appropriate sign off (for example: "Thanks" or "Sincerely", followed by your full name)
- Do not expect an answer if you send an email at the last minute. We will try our very best to reply *within 24-48 hours*.

JEG100 is a Green Course! Be sure to print your labs double-sided, skip title pages, and if you must print out lecture slides, print them using the multiple slides per page format.

Check out the UofT Sustainability Office's many initiatives:
http://www.fs.utoronto.ca/SustainabilityOffice/

Weekly Topics and Required Readings

	Week #	Date	Topic	Reading (Chapters in PCL*)	Lab
Atmosphere	1	7-Sep	Introduction to Earth systems	1, 2: Essentials and Introduction	NO LAB
		12-Sep	Solar radiation	3: Solar energy	
		14-Sep	Surface energy balance	4: Atmosphere	
	2	19-Sep	Temperature	5: Temperature	Lab 1 Surface Energy Balance (due in 2 weeks)
		21-Sep	Air pressure and circulation	6: Circulations	
	3	26-Sep	Water in the atmosphere	7: Water	NO LAB
		28-Sep	Weather: air masses	8: Weather	
Geosphere	4	03-Oct	Earth materials: matter and minerals	9: Matter and minerals	Lab 2: Weather Maps (due in 2 weeks) Lab 1 DUE (hand in hard copy at the beginning of your PRA meeting)
		05-Oct	Minerals and rocks	9, 10: Rocks	
	5	10-Oct	Rocks (Cont'd) and the Rock Cycle	10: Rocks	
		12-Oct	Plate tectonics	11: Plate tectonics	
	6	17-Oct	Plate tectonics	11: Plate tectonics	Lab 3: Minerals (due at the end of lab class) Lab 2 DUE (hand in hard copy at the beginning of your PRA meeting)
		19-Oct	Geologic time	12: Geologic time	
Hydrosphere/ Cryosphere	7	24-Oct	The hydrologic cycle	13: Water resources	Lab 4: Rocks (due at the end of lab class)
		26-Oct	Weathering and mass movement	14: Weathering	
	8	31-Oct	Weathering and mass movement (Cont'd) and review for Midterm	14: Weathering	NO LAB
		02-Nov	**MIDTERM TEST DURING CLASS: ARRIVE 2 PM SHARP**		
FALL BREAK: NOVEMBER 6-10, NO CLASSES					
Hydrosphere/ Cryosphere	9	14-Nov	Geomorphology and fluvial landforms	15: River systems	NO LAB
		16-Nov	Glacial landforms	16: Glacial landscapes	
Biosphere	10	21-Nov	Quaternary ice ages and paleoclimatology	16: Glacial landscapes	Lab 5: Landforms (due at the end of lab class)
		23-Nov	Soil development	17: Soils	
	11	28-Nov	Soil classification	17: Soils	NO LAB
		30 Nov	Biomes	18: Biomes	
Summary	12	05-Dec	The Anthropocene, the Critical Zone and Earth's future. Summary and review		NO LAB

* These chapters are in *JEG100: Introduction to Physical Geography and Earth Sciences. Pearson Custom Library*. Available at UofT Bookstore. The table of contents for this custom text is posted on Blackboard under "Course Materials".