

Course Syllabus: Fall, 2016

Course Title: Life on Planet Earth

Earth Sciences 1083F

Background Required: This course is intended (but not limited to) students registered in faculties other than Science.

Prerequisites: None ; **Antirequisites:** Earth Sciences 2265A/B, 2266F/G; **Restrictions:** Cannot be taken by students registered in yr. 3 or 4 of an Earth Sciences module.

Aims of the Course: This course is designed for (but not exclusive to) students with a non-science background. The fundamental aims of this course are to provide such students a basic understanding of:

- a) The history of life on Earth in the context of geological time and Earth processes
- b) Principles of biological evolution
- c) Evolutionary trends in major animal groups

Learning Outcomes: Upon completion of this course, the student will be able to:

1. Identify and classify common minerals, rocks, and other Earth materials and describe the significance of these materials in context of: a) their distribution and abundance in the Earth system; b) their relationship to, and interpretation of, Earth processes through time, and c) the preservation of evidence of past life in the geologic record.
2. Demonstrate an understanding of the history of evolutionary thought and identify major scientists who played major roles in the development of evolutionary and geologic theories.
3. Identify (and name) major groups of organisms that existed through Earth's history (in the context of the geologic time scale) and describe processes of evolution and extinction recorded in their fossil record.
4. Articulate, in written form, basic scientific concepts covered in the course and acquired through independent research.

Note on the nature of scientific material to be covered in this course: This course is a Science course. As such, it concentrates on scientific subject matter. Students enrolled in this course can expect to learn, apply, and be tested on, scientific concepts, technical scientific terms and problem-solving skills inherent to the scientific disciplines relevant to this course (primarily the disciplines of Earth Sciences and Biology). **However, material to be tested will be qualitative (not quantitative)** and will therefore not involve the rote memorization of numbers (including historical dates) or the use of complex scientific formulas.

Lectures: Mon., Wed. and Fri., 9:30-10:30 am, SSC-2036

Tutorials: Sec. 002 on Mon., 10:30-11:30, B&GS-1015; Sec. 003 on Fri., 10:30-11:30, B&GS-1015

Note: You are required to attend the specific tutorial session in which you are registered; if you need to change your tutorial day, make sure you make a formal arrangement with your instructor to do so before the first tutorial.

OWL site for lecture resources: <https://owl.uwo.ca/portal> (log in with UWO username and password)

Instructor: Dr. Cameron J. Tsujita, Assistant Professor, Department of Earth Sciences

Email: ctsujita@uwo.ca (Note: Please include 'ES 1083F' in the subject line of all emails about this course. Emails without "ES 1083F" in the subject line might be deleted as spam)

Office: Biological and Geological Sciences, Rm.1064

Earth Sciences Tel: (519) 661-3187; **Fax:** (519) 661-3198

Office Hours: 1:30-3:30 pm Mondays and Wednesdays (but I'll be glad to talk to you at any other time as long as I'm in, or feel free to ask via my email address: ctsujita@uwo.ca!)

Note: Powerpoint presentations for each lecture will be posted the evening before the lecture (at the latest), and will remain on the website for the rest of the term. Note, however, that **some material in the presentations will be deliberately left out**, requiring you to fill in important terms and other information critical to the topic. You will therefore be required to come to the lectures. It follows that the **Powerpoint presentations posted on OWL are not to be used as a substitute for coming to class (you have been warned!)** Historically, students who have not come to class regularly have fared poorly in this course. **It is up to you to download the presentations when they are available (if you intend to annotate them in class).** If you miss a class, it is entirely your responsibility to obtain the information you missed from a classmate

Teaching Assistants: To Be Announced (Contact information available on the OWL website).

Note: Drop box for assignments and essays is located opposite (and slightly up the hall from) **B&GS Rm. 1015. Do not slip assignments under office doors.** Tutorial assignments will be due in the drop box by the end (11:30 am) of your next regularly scheduled tutorial session. The hard copy of your term paper will also be submitted here.

Textbook (for pre-midterm material): Earth: An Introduction to Physical Geology (Custom Edition for Western University), Authors: Tarbuck/Lutgens/Tsujita/Hicoek, Pearson Custom Publishing; OR if you have already used the full version of the text in another course such as Earth Sciences 1022A/B (Earth Rocks!) and have held on to it, you need not buy this abbreviated edition. If you plan to take Earth Sciences 1022B, 1081B or ES2200A in the future, you are encouraged

to buy the full version (**Earth: An Introduction to Physical Geology, 4th Canadian Edition**) as you will be using it anyway and this will save you a few bucks (you can find it in the bookstore under Earth Sciences 1022a/b).

Note: Outlines for the tutorial assignments will be posted online on OWL site for the course. It is up to you to print out a copy for your own use before coming to your tutorial session.

Evaluation Scheme:

Tutorial Assignments (20 % total)

Midterm Exam: 20%

1 Final Term Paper: 20 %

Final exam: 40%

2016 Lecture and Tutorial Schedule

Week	Date	Lecture and Tutorial Topics (and Other Items of Significance)
Wk. 1	Sept. 9	The Joy of Rex: Introduction to paleontology and evolution <i>Note: No Tutorials This Week (Tutorials start on week 4)</i>
Wk. 2	Sept. 12 Sept. 14 Sept. 16	The Holy and the Heretical: Pre-Darwin concepts of fossils and evolution Confessions of a Seasick Naturalist: Charles Darwin, the Beagle, early thoughts on natural selection Darwin's Big Breakthrough: Natural selection as a fundamental driving force in evolution <i>Note: No Tutorials This Week (Tutorials start on week 4)</i>
Wk. 3	Sept. 19 Sept. 21 Sept. 23	Mendel to Modern Synthesis: From Chipmunk Czech Monk to Marmy Mathematicians All Along the Ivory Tower: the Modern Synthesis of Evolution, Punctuated Equilibrium and Tricking the Clock: Some Quirks of Heterochrony <i>Note: No Tutorials This Week (Tutorials start on week 4)</i>
Wk. 4	Sept. 26 Sept. 28 Sept. 30	The Earth System and Introduction to Minerals Minerals, cont'd Earth Rocks !: Rock-forming environments <i>This Week's Tutorial: Tutorial Assignment 1 - Adaptation, Form and Function</i>
Wk. 5	Oct. 3 Oct. 5 Oct. 7	Earth Rocks!: cont'd Rocks as time machines: Principles of geologic time The Dancing Plates: The plate tectonic revolution <i>This Week's Tutorial: Tutorial Assignment 2 - Minerals (Assignment 1 due.)</i>
Wk. 6	Oct. 10 Oct. 12 Oct. 14	No classes (Thanksgiving) The Dancing Plates, cont'd To Be or Not To Be: Fossilization processes and information loss <i>No Tutorials This Week (on account of Thanksgiving on Oct. 10)</i>
Wk. 7	Oct. 17 Oct. 19 Oct. 21	To Be or Not To Be cont'd: Fossilization processes and information loss Primordial Soup in the Kitchen of Life: Origin of Life Primordial Soup in the Kitchen of Life, cont'd. <i>This Week's Tutorial: Tutorial Assignment 3 - Rocks (Assignment 2 due).</i>
Wk. 8	Oct. 24 Oct. 26 Oct. 28	Midterm exam (during regular lecture time (9:30–10:20 am) in regular lecture room (SSC-2036) Of Microbes....and Martians ?: Earth's Earliest Life No Class (Fall Study Break) <i>No Tutorials This Week (Due to Fall Study Break)</i>
Wk. 9	Oct. 31 Nov. 2 Nov. 4	Sex and the Simpleton: Evolution of Sex and the Rise of Eukaryotes Skeletons in the Closet: the Evolution of Hardparts in Metazoa Spineless Wonders: Survey of the Invertebrates <i>This Week's Tutorial: Tutorial Assignment 4 – Geologic Time (Assignment. 3 due).</i>
Wk. 10	Nov. 7 Nov. 9 Nov. 11	Sole Mates: Evolution of Fishes Lungs for Land: Evolution of Amphibians From Slime to Scales: Evolution of Reptiles <i>This Week's Tutorial: Tutorial Assignment 5 – Plate Tectonics (Assignment 4 due)</i>
Wk. 11	Nov. 14 Nov. 16 Nov. 18	Dig These Dragons: Evolution and Diversification of Dinosaurs Dig These Dragons, cont'd: Evolution and Diversification of Dinosaurs Serpents and Spitfires: Marine Reptiles and Flying Reptiles <i>This Week's Tutorial: Tutorial Assignment 6 – Fossil Preservation (Assignment 5 due)</i>
Wk. 12	Nov. 21 Nov. 23	Barney to Big Bird: The Origin of Birds Cretaceous Calamity: The Cretaceous-Tertiary Mass Extinction

- Nov. 25 **The Advantage of Being a Furball:** Diversification of Mammals (*final term paper due 4:00 pm*)
No Tutorials This Week (but Assignment 6 due at regular time).
- Wk. 13** Nov. 28 **Brontotheres and Other Big Brutes:** Evolution of Large Mammals
 Nov. 30 **Monkey Business:** Evolution of the Primates
 Dec. 2 **A Recipe for Disaster:** Rise of the Hominids
No Tutorials This Week
- Wk. 13** Dec. 5 **What Goes Around Comes Around:** Humankind, the Environmental Crisis, and the
 Future of Life on Earth
 Dec. 7 **Catch-up Class:** Wrapping up any unfinished content (if Cam gets behind in lecture schedule)
No Tutorials This Week

Accessibility Statement: Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

Comments on Assignments:

- 1. Outlines for all assignments and essays** will be available for download on OWL; *all tutorial assignments and term papers* submitted for marking are to be deposited in the appropriate slot in the **drop box in your tutorial room (B&GS Rm. 1015; white cabinets with slots) labeled by course number and tutorial session.**
- 2. Policy on grade deductions for late submissions of assignments:** All assignments (including tutorial assignments and term papers) missing from the drop box at the prescribed time and date will automatically be deducted **10% within the first 24 hours late and 10% for each subsequent day late** (but weekends from 4:00 pm Friday to 4:00 pm the following Monday will count as 1 day).
- Some **very short tutorial assignments** will be assigned in the early part of the course. You will basically have one week to complete each tutorial assignment (with a couple of exceptions due to Thanksgiving and Fall Study Break). You will **submit each tutorial assignment to the drop box by the beginning (10:30 am) of your next regularly scheduled tutorial session.** The tutorial sessions are scheduled for the purpose of having the TAs on-hand to help you out in doing the assignments. **Please make use of the time the TAs are present.**
- 4. Comments on the content of the tutorial assignments**
 The tutorial assignments are designed to encourage you to look at real examples of the various minerals, rocks, and other items that we will be dealing with in this course in a hands-on manner. They are NOT designed to stump you- yes, we know many of them will seem **too easy.** Approach these assignments as tools for reinforcing the concepts that we deal with in class and your ability to problem-solve. Remember: **Observe, record then interpret.**
- As this course is designated as an essay course, a **2500 word (maximum) term paper** addressing some aspect of biological evolution will be assigned in later part in the term. A complete set of instructions for preparing your essay will be provided later in the term on OWL. You will be required to submit a **hard copy of your final term paper into the drop box in B&GS Rm. 1015** by 4:00 pm, Friday, Nov. 25 (slot labelled according to your tutorial section). **In addition to your hard copy, you will submit an electronic copy to Turnitin** via a link that will be provided on the course OWL site.
- 6. It is very important that you follow the instructions provided for all assignments and exams. Any marks lost from not properly following instructions (including those pertaining to the formatting of assignments) are non-negotiable.** We expect proper spelling, grammar and sentence structure in the short written assignment and term paper. Ensure that your assignments are thoroughly proofread before you hand them in.

Comments on Exam Format:

Both the midterm and final exams will follow a basic format (at least approximately):
 Approximately 1/3 of the exam will consist of “fill-in-the-blanks”-type questions (1 mark per blank). These are designed to evaluate how well you understand the meanings of certain terms, important associations between concepts, and aspects of the various minerals, rocks and other substances dealt with in the course.
 Approximately 1/3 of the exam will require you to provide definitions (preferably in your own words) of terms provided (2 marks per definition). A **clear and concise definition** should only require the equivalent of approximately two sentences (plus sketches if they improve the clarity of your statements). Keep in mind that **a longer answer does not necessarily equate with a better mark; if the pertinent information is not there, it’s just not there!**
 Approximately 1/3 of the exam will require paragraph-length answers (4 marks each). These will mostly deal with concepts, historical items, and links between concepts that require longer explanations.
 Unlike the tutorial assignments and term papers, which will require proper sentences and paragraphs, **answers on exams can be written in point-form. Important Note: It is extremely important that you attend all lectures so that you understand the subject matter. All exam material will be based on the material covered in class (specific material in the textbook or online readings that is not discussed in class will not appear in your exams).**

Policy on Late Assignments and Missed Exams (Due to Illness or Other Serious Circumstance)

If you are unable to meet a course requirement (i.e., an assignment or exam) due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here:

<http://www.uwo.ca/univsec/handbook/appeals/medicalform.pdf>. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information please see: http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf. If official approval and documentation is not provided to the instructor, the penalties for late assignments will apply (see above) and/or permission to write a Special Examination will not be granted.

Please Note: We cannot and will not accommodate any requests to hand in an extra assignment for the purpose of boosting your final course grade.

Additional Comments on Student Conduct:

1. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following site: <http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf>

2. **Plagiarism: It is mandated by the University that the following statement on plagiarism be added to all course outlines:** "Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar)." Cheating on exams (including both lecture and lab exams) will also not be tolerated.

3. All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>)."

4. **While we encourage you to collaborate with your classmates, especially for the tutorial assignments. However, we expect you to actually write your answers independently!** With the exception of one- or two-word answers, we will expect that **your answer will be sufficiently unique from others that it is obvious you didn't simply copy from a classmate.** In cases where two or more people who submit work that is suspiciously similar, their work will not be marked and those involved will be reported to a higher authority. **Likewise for term papers, which cannot contain passages copied word-for-word from external sources (i.e. you will paraphrase all information acquired from such sources).**

5. Electronic devices will or will not be allowed during tests and examinations.

6. As indicated above, the powerpoint slides used for lectures in this course are **posted on OWL in incomplete form deliberately. It is up to all students to attend classes and fill in the "missing" material. (You have now been warned twice!)** Complaints that the complete versions are not posted (especially near the end of term) will not be taken seriously.

"When do we get our assignments/exams back?" Please respect the amount of work that the instructor and TAs invest in marking the assignments. Exams and assignments typically take **at least** a week to mark (longer for term papers), so **please** be patient (we're working as hard as we can !). Also, please refrain from verbally abusing the instructor and TAs by email, especially the night before an exam or similar last-minute circumstance. We will respond to your concerns as promptly as we can! Use respect, and you will receive it in return!

And finally...a friendly message from Dr. Cam Tsujita (your Instructor):

Now that you have slogged through the nasty fine print of this syllabus, I would like to extend a warm welcome to you in joining this course. I do hope, of course, that you will find the course material interesting. But beyond this, I hope that you will enjoy the learning experience itself. And if you come into this course dreading the thought of having to take this science (as is often the case for people who had an unpleasant experience in high school science), I hope that I can convince you that science really doesn't have to be difficult and boring. I dare say that it can actually be fun (even for people who are not science geeks like myself!) And yes, believe it or not, rocks can be interesting!

If you have absolutely any questions regarding the concepts covered, the meaning of terms, or anything else, or just want to come by for a friendly chat, my office door is always open (as long as I'm actually *in* my office, of course). If, for whatever reason, I'm not in my office, feel free to email me directly at ctsujita@uwo.ca and I'll get back to you as soon as I can. An able team of friendly TAs will also be available for consultation if you have questions about the course material (email addresses posted on the OWL page). So buckle up, and I hope you enjoy this journey through time!