Earth Sciences 1083F (Life on Planet Earth) Course Outline

1. Course Information

PLEASE NOTE: This course is designed for **in-person classroom learning**, with a compulsory component of hands-on exercises with rocks and fossils. You are advised to consider other course options if you plan to learn remotely.

Course Information:

Earth Sciences 1083F: Life on Planet Earth
Academic Term: Fall (**September 1 – December 31, 2024**)
Lectures: In-Person; 3 hours/week ([redacted])
Tutorial Hours: In-Person; 1 hour/week (See Section 3 below for schedule)

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

Note: Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructors	**Email**	**Office**	**Phone**	**Office Hours (In-Person or Zoom)**
Dr. Jisuo Jin (Course Instructor)	[redacted]	[redacted]	[redacted]	[redacted]
Teaching Assistants (TAs)	**Email**			**Office Hours (In-Person or Zoom)**
Saralyn Smith				by appointment.
Elham Asadi-Mehmandosti				by appointment.

Note on emailing instructors/TAs: Students must use their Western (@uwo.ca) email addresses and include the course number **Earth Sciences 1083F** in the subject line when contacting their instructors.

3. Course Syllabus, Schedule, Delivery Mode

Objectives of the Course: The fundamental objectives 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.

Course-Level Learning Outcomes / Expectations: Upon successful 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. Describe 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 context of the geologic time scale).
4. Describe the processes of evolution and extinction as recorded the fossil record.

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

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 memorization of numbers.

Delivery Format:

Lectures: In-Person, [redacted]

Lecture slides will be posted on OWL each week according to the course schedule below (Course Schedule for ES1083F).

Tutorials: In-Person (*Refer to your personal **section** to which you are assigned):*

[redacted]

Note**: if you need to change the tutorial section you are officially registered in** (according to the Office of the Registrar), you **must** ask your instructor for approval. This is because your TAs need to be able to keep track of exactly who is in each tutorial section. If approved, you must then confirm both your instructor and TAs of both sections of your intent to attend a different section.

Weekly Quizzes: Asynchronous Online (via OWL Brightspace – Assessments); assigned each Friday at 11:30AM, based on lecture material covered in the current and/or previous week). Each quiz will be due the following Friday at 11:30AM). **There will be no make-up quizzes for two reasons**: 1) you have a whole week to complete an open-book quiz; 2) there are 12 quizzes in total but, for each student, only 10 with the highest marks will be counted.

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 in *Assignments*. You will submit your completed term paper to **Turnitin** (via *Assignments* in OWL).

Note on Learning Course Content: As with any university course, you are responsible for understanding all material presented in the lectures, so it is very important to attend all lectures and to read associated the supplementary material (e.g. e-text readings). Note that some of the lectures cover topics that are treated only superficially in the e-text (which is meant to serve as a supporting resource for the lectures, not the other way around). The exams will draw from material covered in the lectures, but the e-text readings will provide additional background that will aid in the understanding of the concepts.

Course Schedule for Earth Sciences 1083F (2022)

Week	Day	Lecture and Tutorial Topics (and Other Items of Significance)	Quizzes (on OWL)	Tutorials Sec. 002: M Sec. 003: F
Week 1 (Fri. Sep. 6)	F	Lecture 1: Introduction to paleontology and evolution	No Quiz	*No Tutorials*
Week 2 (Sep 9-13)	M	Lecture 2: Pre-Darwin concepts of fossils and evolution	Quiz 1 (Wk. 2 material) opens Fri.	*No Tutorials*
	W	Lecture 3: Charles Darwin, the Beagle, and his early thoughts on natural selection		
	F	Lecture 4: Darwin's Big Breakthrough: Natural selection as a fundamental driving force in evolution		
Week 3 (Sep 16-20)	M	Lecture 5: Mendel to Modern Synthesis	Quiz 1 due Fri.; Quiz 2 (Wk. 3 material) opens Fri.	*Tutorial 1 (Form & Function)*
	W	Lecture 6: Modern Synthesis of evolution and punctuated equilibrium		
	F	Lecture 7: Heterochrony		
Week 4 (Sep 23-27)	M	Lecture 8: The Earth System and introduction to minerals	Quiz 2 due Fri; Quiz 3 (Wk. 4 material) opens Fri.	*Attend Tutorial 2 (Minerals;)* *Submit Tutorial Assign. 1*
	W	Lecture 9: Mineral Properties		
	F	Lecture 10: Igneous Rocks		
Week 5 (Sep 30-Oct 4)	M	NDTR — No lecture	Quiz 3 due Fri. Quiz 4 (Wk. 5 material) opens	*No tutorial*
	W	Lecture 11: Sedimentary and Metamorphic Rocks		
	F	Lecture 12: Rocks as time machines: Principles of geologic time		
Week 6 (Oct 7-11)	M	Lecture 13: The Dancing Plates 1: The plate tectonic revolution	Quiz 4 due Fri. Quiz 5 (Wk. 6 material) opens Fri.	*Attend Tutorial 3 (Rocks);* *Submit Tutorial Assign. 2.*
	W	Lecture 14: The Dancing Plates 2: Importance of plate tectonics		
	F	Mid-term text		
Week 7 Oct 12-20	*Thanksgiving Holiday and Reading Week*			
Week 8 Oct 21-25	M	Lecture 15: To Be or Not To Be: Fossilization processes and information loss	Quiz 5 due Fri. Quiz 6 (Wk. 7 material) opens Fri.	*Attend Tutorial 4 (Geol. Time);* *Submit Tutorial Assign. 3*
	W	Lecture 16: Primordial Soup in the Kitchen of Life: Origin of Life		
	F	Lecture 17: Of Microbes….and Martians?: Earth's Earliest Life		
Week 9 Oct 28-Nov 1	M	Lecture 18: Rise of Eukaryotes	Quiz 6 due Fri.; Quiz 7 (Wk. 8 material) opens Fri.	*Attend Tutorial 5 (Plate Tectonics);* *Submit Tutorial Assign. 4*
	W	Lecture 19: Origin of skeletons in Metazoa		
	F	Lecture 20: Survey of Invertebrates		

Week 10 Nov 4-8	M	Lecture 21: Evolution of Fishes	Quiz 7 due Fri.; Quiz 8 (Wk. 10 material) opens Fri.	*Attend Last Tutorial 6 (Fossil Prervation); Submit Tutorial; Assign. 5*
	W	Lecture 22: Evolution of Amphibians		
	F	Lecture 23: Evolution of Reptiles		
Week 11 Nov 11-15	M	Lecture 24: Evolution of Dinosaurs	Quiz 8 due Fri.; Quiz 9 (Wk. 11 material) opens Fri.	*Submit last tutorial Assignment 6*
	W	Lecture 25: Evolution and Diversification of Dinosaurs		
	F	Lecture 26: Marine Reptiles and Flying Reptiles		
Week 12 Nov 18-22	M	Lecture 27: Origin of Birds	Quiz 9 due Fri. ; Quiz 10 (Wk. 12 material) opens Fri.	
	W	Lecture 28: The Cretaceous-Tertiary Mass Extinction		
	F	Lecture 29: Origin and Diversification of Mammals		
Week 13 Nov 25-29	M	Lecture 30: Evolution of Large Mammals	Quiz 10 due Fri. Bonus Quiz 11 (Wk. 13 material) opens Fri.	*Final term paper due at 5:00PM, Monday, Nov, 25 (submit to "Assignments" in OWL).*
	W	Lecture 31: Evolution of the Primates		
	F	Lecture 32: Rise of the Hominids		
Week 14 Dec 2-6	M	Lecture 33: What Goes Around Comes Around: Humankind, the Environmental Crisis, and the future of life on Earth	Bonus Quiz 11 due Fri.	
	W	Q & A Review		

Key University Sessional Dates :

Classes begin: Thursday, September 5, 2024 (first lecture of ES1083F: September 6)
NDTR: Monday, September 30, 2024.
Mid-term test: Friday: October, 11, 2024.
Thanksgiving: October 14, 2024.
Fall Reading Week: October 12–20, 2024.
Classes end: Thursday, December 5, 2024.
Exam period: December 19–22, 2024.

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined

4. Course Materials

A. Required e-textbook (student to purchase): This is a digital collection from four geology and biology textbooks, custom-designed for ES1083F:

- Digital collection title: *Life on Planet Earth (Parts A & B)*
  Earth Sciences 1083F
  Jisuo Jin

- The materials for this course are delivered online by Pearson (publisher). Due to US copyright issues, the e-Text is split into two parts, **with separate links**:

  Part A: US portion (~$20 CAD)

Student link: https://console.pearson.com/enrollment/crnvb9

Part B: Canadian Portion (~$42 CAD)

Student link: https://console.pearson.com/enrollment/hhxvwc

- Follow the separate links, sign in or create a new Pearson account, and purchase separately using a major credit card or PayPal.
- Course Start Date: 31-Aug-2023
- Subscription Length: 6 months from student registration. Student access to this Digital Collection expires six months after student registration.

B. **PowerPoint lectures (free)**: each lecture will be posted on OWL well ahead of the lecture time.

Students should check OWL (http://owl.uwo.ca) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements:
If a health crisis lock-down necessitates migration of the course to an online format, it will be important to have a stable internet connection and a computer with working microphone and/or webcam to view lectures, tutorials and to online write exams.

5. Methods of Evaluation

As you will see below, we have allocated parts of your course grade to **multiple types of assessments** distributed over the term. **This is deliberate.** This design allows students to work for marks in a larger number of smaller installments over time rather than fewer, larger assessments. This means that students have a reasonable opportunity to compensate for a poor grade in one or two of these assessments (e.g. midterm exam). We regard this as preferable over fewer, higher-stakes, assessments.

Your final course grade will be calculated as follows:

11 Weekly online (OWL) quizzes (best 10 marks):	10%
6 Tutorial Assignments:	15%
Midterm Exam (in person: [redacted]):	20%
Term Paper:	20%
Final exam (in person, scheduled by Registrar):	35%

Please Note: We **will not** accept any requests to hand in an extra assignment for the purpose of boosting final grades after the fact.

Online (OWL) quizzes
For the purpose of encouraging everyone to stay "on track" in learning the subject matter as it is covered, **online quizzes will be completed via OWL)** by students on a weekly basis. There will be a

total of 11 quizzes over the course of the term. For the each of the weeks indicated above, you will complete the quiz by **11:55 on the date indicated above (which will always be a Friday).** Each quiz will be based on the lecture content covered that week (and/or part of the previous week). You will have approximately one week (and three (3)) attempts for each quiz. Provided that you have done the e-text readings and have attended the lectures, it should be pretty easy to get good marks in these quizzes. Quizzes submitted after the deadlines indicated will be immediately deducted 10%, then an additional 10% for each subsequent day (24 hours) late). Your quiz mark for the term (10%) will be the average mark of your best 10 (of 11) quizzes. The quizzes should not be a significant time investment (if you are following the lecture material reasonably well, it shouldn't take you longer than about 15 minutes to complete).

Tutorials
The tutorials in this course are designed to give you practical experience with some of the more fundamental concepts in the course, including mineral, rock and fossil identification, geologic time, plate tectonics and fossil preservation. These are sort of "mini labs" that are scheduled roughly once a week according to the schedule above. Tutorial assignments will be submitted to the appropriate slot (labelled according to tutorial section) in the assignment drop box (white box inside B&GS 1015) by the beginning of your next regularly scheduled tutorial session. You should be able to complete each tutorial within the tutorial session time, but you are given a week to hand them in. Assignments handed in late will be deducted 10% of the assignment grade for each day late.
If you miss, or anticipate missing, a tutorial due to medical (or other legitimate reasons), report your absence to the head (instructional) TA of the relevant tutorial to arrange an alternate date to complete and submit the assignment(s).

Format for Midterm and Final Exams: Both exams will be administered in person and will consist of a combination of multiple choice/fill in the blanks, definitions & short written answer questions. The Midterm Exam will be 50 minutes long and the Final (Lecture) Exam will be 2 hours long.

Policy on Late Submission of Weekly Quizzes, Tutorial Assignments, and Term Paper: Quizzes, tutorial assignments and term papers completed and submitted after the deadlines specified in the course schedule above will be deducted 10% for each day late unless recommended otherwise by academic counselling or accounted for by a self-reported absence (see Section 6 below).

Accommodated Evaluations
See Section 6 (Student Absences) below for details on missed evaluations.
For exams, if approval is granted for accommodation by both Academic Counselling and the Instructor, a student will be permitted to write a make-up test/exam as deemed appropriate by the instructor (and, if necessary, in consultation with the student's academic counsellor). If the make-up evaluation (test/exam) is missed for a valid reason (proven with documentation provided to academic counselling), arrangements can be made to re-schedule the evaluation.

Requirements for Passing the Course
A passing grade for the course is 50% for all grade components combined. The **writing of the midterm and final exams in the course is mandatory** in order to pass the course**.** Submission of the final term paper (even if late) is also mandatory for passing the course as this is a fundamental component of an *essay course*.

6. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

Assessments worth less than 10% of the overall course grade (i.e. quizzes and tutorials):

For work worth less than 10% of the total course grade, notify both your instructor and TA of your circumstances within 24 hours of the missed assessment or deadline so that alternate arrangements can be made for submission.

Assessments worth less than 10% of the overall course grade:

Missed midterm exam: a make-up can be arranged with the course instructor if the following two conditions are met: 1) you notify the instructor by email your absence **before** the beginning of a lecture, in which a quiz is held, and 2) you have approval from academic counselling (of your faculty or affiliate college) for accommodations.
Missed Tutorial assignments: A make-up tutorial assignment can be arranged with the instructor and TA if you have approval from a Faculty of Science counsellor for accommodation.

Assessments worth 10% or more of the overall course grade:

By policy, academic considerations for work totalling 10% or more of the final course grade can be granted only by the student's Faculty of Registration (typically by their academic counsellors). In such cases, students should be directed as follows.

For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf.

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Students approved for accommodation by academic counselling (of their home faculty or affiliate college) will be provided an extension/make-up opportunity for missed work.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Note: missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

7. Accommodation and Accessibility

Religious Accommodation
When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at:

https://multiculturalcalendar.com/ecal/index.php?s=c-univwo.

Accommodation Policies
Students with disabilities work with Accessible Education (formerly SSD), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf,

8. Academic Policies

The website for Registrarial Services is http://www.registrar.uwo.ca.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Electronic devices will not be permitted on tests and exams (any questions requiring mathematical calculations will be sufficiently simple to not require a calculator).

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 Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

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).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

In the event of a health lock-down, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

https://remoteproctoring.uwo.ca.

9. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/.

Learning-skills counsellors at the Student Development Centre (http://www.sdc.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mentalhealth) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC, http://westernusc.ca/services.

This course is supported by the Science Student Donation Fund. If you are a BSc or BMSc student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Counselling site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.