

# Earth Science 1086F: Origin and Geology of the Solar System

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Fall 2018

## Instructor

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## Course Grades

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<u>Item</u>	<u>Percentage</u>
Midterm Exam	25%
Graded Forum Posts	10%
Graded Quizzes	10%
Scientific Report	30%
Final Exam	25%

**Midterm Exam** - The midterm exam is scheduled for Saturday October 20<sup>th</sup> at 2pm. This exam will be made up of multiple-choice questions and will cover Units 1-3 inclusive (to the end of chapter 11). A make-up exam will be held on Tuesday October 23<sup>rd</sup> at 7pm. You can only take the make-up exam with permission from the academic counsellor.

**Quizzes** - These will be given at intervals during the course (see Weekly Schedule). There are 8 graded quizzes. There are also 8 self-tests; these are not graded, and are available to you as practice quizzes. Quizzes are automated through the OWL system, so do not wait until the last minute to submit them. Last minute computer problems will not be accepted as grounds for accommodation. No one will be permitted to complete a quiz after the due date.

**Final Exam** - This will be a multiple-choice and short answer exam that will cover the second half of the course, Units 4-7 inclusive (to the end of chapter 19). The exam is NOT cumulative.

**Scientific Report** - A scientific report of an assigned research topic. This will be submitted in two parts, with assignment information available in OWL. You must submit the essay to pass the course.

**Graded Forum Posts** - You will receive 2% for posting at least 1 thoughtful question/comment/answer in the Forum "Suggested Exam Questions". Some of these questions will be used on the final exam. 5% for participating in the Forum "Space

Exploration in the News”. 2% for reading all the comments in the “Space Exploration in the News” Forum. 1% for participating in polls distributed throughout the course notes.

## Course Themes and Objectives

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This course will explore the Solar System: we will look at our star (the Sun), the planets and their satellites, and other bodies such as asteroids and comets. We will consider the hypotheses and theories that attempt to explain their origins. We will see how knowledge of Earth's geology applies to other planetary bodies in the Solar System. The course will end with a discussion of potential extraterrestrial life. As technology improves and as more space vehicles probe beyond Earth, knowledge expands dramatically. We will note new hypothesis and new exploration data with postings on the course forum.

This course emphasizes qualitative approaches to the topics and is appropriate for all students, irrespective of backgrounds. Course content is available **online only**. It is your responsibility to maintain access to the internet for the duration of the course.

By the end of this course, all students will be able to:

- Gain an appreciation for the current state of knowledge about the Solar System, and the information behind these concepts
- Recognize the process of evolution of a star-planet system, and how Earth is not always the best analogue to other planets
- Students will gain an understanding of a scientific study, from observation and gathering of evidence, to hypothesis, and ultimately to a refined theory
- Students will learn how to write scientific reports; an assigned topic will be researched and presented in scientific format
- Students will apply this knowledge by taking part in online discussions concerning new developments in planetary exploration

## Assignment Schedule

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<u>Topic</u>	<u>Due Date</u>
Essay Submission 1	<b>Oct. 17<sup>th</sup> at Midnight</b>
Midterm Exam	<b>Oct. 21<sup>st</sup> at 2:00pm</b>
Quizzes 1-3b	<b>Oct 21<sup>st</sup> at Midnight</b>
Revised Essay Submission II	<b>Nov. 23<sup>rd</sup> at Midnight</b>
Graded forum Post deadline (Write an exam question)	<b>Dec. 2<sup>nd</sup> at Midnight</b>
Graded forum post deadline (Space News)	<b>Dec. 2<sup>nd</sup> at Midnight</b>
Quizzes 4-7	<b>Dec. 7<sup>th</sup> at Midnight</b>
Final Exam	<b>Set by Department</b>

## Scientific Report

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Details concerning the requirements for the scientific report (essay) can be found in the OWL site under “Assignments”. Completion of the essay assignment is required to pass the course.

- The essay is worth 30% and is submitted in two different versions. The first version will be worth 15% of the course grade. You will receive feedback on this version that you can use to improve your essay and resubmit for the second version, which is also worth 15% of the course grade. Revising your essay to improve its content based on feedback from your TA is an opportunity to improve your writing and your grade.
- The revised (second) version of the essay may be submitted at any time up to the final submission deadline. If you do not make any revisions or if you do not submit a second version you will receive the same mark on both versions.
- Questions about the essay should be posted in the forum or communicated to your TA or instructor via email.
- All essay submissions must be made through OWL submissions system. Mail attachments will not be graded.
- When you submit an assignment, you will receive an email receipt from OWL and an email from Turnitin.com. Keep these for your records.
- Late assignments submitted within two hours of the deadline will receive a 2% penalty.
- For 5 days following, those “Due Dates” (including weekend days) reports may be submitted, but will be subjected to a 5% per day late. No reports will be accepted after that.
- When you submit your report, you will get a Turnitin score. Scores of up to 30% are not unusual in this kind of writing, but scores in excess of 40% could indicate a problem. Your TA will use the Turnitin report to check for originality in the written content. If evidence of plagiarism is found, you will get an automatic zero, and you will be reported to the Dean. Plagiarism is a serious offense and is treated seriously in this class.

## Online Forums

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The OWL website has a forum feature that you can use to discuss topics related to class material with your classmates. Feel free to ask each other questions, answer other people's questions, and make comments. I will be monitoring the forum at least three times per week, and all class participants are required to read and contribute to the forum. If you have any personal questions, you can email the instructor directly and I will respond. Before sending a message, consider posting your query to the forum where you may get a quicker response and allow other students to benefit from the discussion. Some information may be communicated only through the forum, so **be sure to check regularly** for new forum posts. Please keep your comments clean, respectful, and on-topic.

- You are required to make one original and thoughtful post in the **Write an Exam Question** topic before **Sunday December 2<sup>nd</sup>** before midnight. Your contributions to this topic will be graded. Further details are in the Forum description on OWL.
- You are required to make at least one original post in the **Space Exploration in the News** Forum by **Sunday December 2<sup>nd</sup>** before midnight, and read 100% of the posts in this forum before the last day of classes (**Friday Dec 7<sup>th</sup> at midnight**). **Your contributions to this topic will be graded.** Further details are in the Forum description on OWL.

## Course Outline

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Each unit contains an Introduction, a Self-Study and a Graded Quiz. The “Learning Goals” in the Unit Introductions are a starting off point for you to begin your studies. More detailed information on what to study is provided in the “Study Guides” that can be found in the section “Reading and Study Material” under the Course Notes.

### Unit 1: Basic concepts

- Chapter 1 – Scientific Theory and the Big Bang
- Chapter 2 – Time and Space
- Chapter 3 – Matter and the Nebular Hypothesis

### Unit 2: The Solar System

- Chapter 4 – A Star called Sun
- Chapter 5 – Geometry of the Solar System

### Unit 3: The Terrestrial Planets

- Chapter 6 – When two planets collide
- Chapter 7 – Earth
- Chapter 8 – The Moon
- Chapter 9 – Mercury
- Chapter 10 – Venus
- Chapter 11 – Mars

\* the Mid-term exam covers up to the end of Chapter 11 \*

### Unit 4: From Asteroids to Meteorites

- Chapter 12 – Asteroids
- Chapter 13 – Meteorites

### Unit 5: The Gas Giant Planets

- Chapter 14 – Jupiter and family
- Chapter 15 – Saturn and family
- Chapter 16 – Uranus and Neptune

### Unit 6: Plutoids, TNOs and Comets

- Chapter 17 – Plutoids and TNOs
- Chapter 18 – Comets

Unit 7: Extraterrestrial Life

- Chapter 19 – Life in the Universe

\* the Final exam covers the Unit 4 Intro to Chapter 19 \*

## Course Schedule

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This is a suggested schedule - you should plan your own schedule according to your reading speed and your obligations. There are 3 weeks without suggested readings to allow time to work on your essay and study for the midterm. Plan ahead, read regularly and keep up with the chapters. Important due dates are included.

<b>Week</b>	<b>Topic</b>	<b>Important Dates</b>
<i>Week 1: Sept 6-9</i>	Course Introduction: Chapters 1 and 2	First day of class Sept. 5
<i>Week 2: Sept 10-16</i>	Chapter 3 Unit 2 Intro Chapter 4	
<i>Week 3: Sept 17-23</i>	Chapter 5 Unit 3 Intro Chapter 6 Chapter 7	
<i>Week 4: Sept 24-30</i>	Chapter 8 Chapter 9 Chapter 10	
<i>Week 5: Oct 1-7</i>	Chapter 11	
<i>Week 6: Oct 8-14</i>	Mid-Term Break	
<i>Week 7: Oct 15-21</i>	Unit 4 Intro Chapter 12 Chapter 13	Essay 1 Due: Oct. 17 <sup>th</sup> Midterm: Oct. 21 <sup>st</sup> Quizzes 1-3b: Oct. 21 <sup>st</sup>
<i>Week 8: Oct 22-28</i>	Unit 4 Intro Chapter 12 Chapter 13	
<i>Week 9: Oct 29-Nov 4</i>	Unit 5 Intro Chapter 14	
<i>Week 10: Nov 5-11</i>	Chapter 15 Chapter 16	
<i>Week 11: Nov. 12-18</i>	Unit 6 Intro Chapter 17 Chapter 18	
<i>Week 12: Nov 19-25</i>		Essay 2 Due: Nov. 23 <sup>rd</sup>
<i>Week 13: Nov. 26-Dec. 2nd</i>	Unit 7 Intro Chapter 19	Post in Forums: Dec. 2 <sup>nd</sup>

Note that lecture schedule is tentative. The schedule may change according to the needs of the course of the time available. Any changes will be made known to the class in advance.

## General Course Policies and Support

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Electronic devices are not permitted during either the mid-term or end-of-term examinations. These include cell-phones, iPads, tablets, and iPods. They must be turned off and put in your bags. They are not allowed in your pocket.

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

Plagiarism is a serious academic offence. The UWO Senate Academic Handbook defines plagiarism as "The act of appropriating the literary composition of another, or parts or passages of his writings, or the ideas or language of the same, and passing them off as the product of one's own mind." Students must write their assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt by using proper referencing. For more information see Scholastic Offence Policy in the Western Academic Calendar.

Please note: When you write your essay, you are not allowed to copy and paste ANYTHING (even if it's just a sentence!) from ANYWHERE. This includes text from websites, papers, books, other students, etc. You are not allowed to copy and paste paragraphs and then change several words. You must gather ideas for your report then write the entire paper in your own words. If any part of your paper is determined to be plagiarized, that part of your paper will NOT be marked. NO EXCEPTIONS!

Plagiarism detection software: All required papers will 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>).

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

**Students' responsibilities in the event of a medical issue:** If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to an academic counsellor in your home faculty as soon as possible and contact your instructor immediately. 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 immediately. A list of forms can be found here: [http://www.registrar.uwo.ca/general-information/forms\\_listing.html](http://www.registrar.uwo.ca/general-information/forms_listing.html)

- No accommodations will be given without documentation, and you must contact the instructor before the deadline or exam, unless you are physically unable to do so. A student requiring academic accommodation due to illness (including stress/anxiety) should obtain documentation from a doctor.

## Support Services

The course is available (upon registration) at <https://owl.uwo.ca/portal>.

Help with computer problems encountered either during initial setup or during the course should be addressed to ITS: <http://www.uwo.ca/its/>

General information about Distance Studies courses, including viewing exam schedules, is available at: [http://www.registrar.uwo.ca/applying/distance\\_studies/](http://www.registrar.uwo.ca/applying/distance_studies/)

The web site for Registrarial Services is found at: <http://www.registrar.uwo.ca>

Instructions for how to contact the Student Development Centre are given here: <http://www.sdc.uwo.ca/>

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

SDC's Learning Skills Services: Rm 4100 WSS, <http://www.sdc.uwo.ca/learning>.  
Counsellors 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.

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 x82147 for any specific question regarding an accommodation.