

## 1. Course Information

### Earth Sciences 1086F – Fall term 2025 (subject to modification)

**List of Prerequisites:** None

**List of Antirequisites:** Earth Sciences 2232F/G, Astronomy 2201A/B, Astronomy 2232F/G

Unless you have either the requisites for this course or written special permission from the instructor 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

**Instructor:** Dr. Nigel Blamey, Department of Earth Sciences.

I encourage you to post questions about the course content in the online Forums. If you need to contact me about something personal, please email at [nblamey2@uwo.ca](mailto:nblamey2@uwo.ca)

Students must use their Western (@uwo.ca) email addresses when contacting their instructors and put the course code (ES1086) in the subject line. Please read the syllabus before asking or posting a question.

Office hours – There are no regular office hours. Your first contact point will be your TA. If you need to speak with me, please email and I'll set up an appointment to meet over Teams.

## 3. Course Description, Schedule, Delivery Mode

### Important dates (all dates and deadlines are Eastern Standard Time)

- ☐ Classes begin: September 4<sup>th</sup>, 2025
- ☐ Academic Integrity Quiz MANDATORY: September 12<sup>th</sup>, 2025, 5:00 pm EST
- ☐ ProctorTrack Onboarding: **Friday, October 10<sup>th</sup>, 5:00 pm EST**
- ☐ Mid-term test: Midterm date and time are pending approval from Exam Central. Official time will be communicated through Announcement on the OWL site.
- ☐ Deadline to post in the Forums: **Friday December 5<sup>th</sup> @ 5:00 pm EST**
- ☐ Deadline for Quizzes 1, 2, 3a, 3b: **Friday October 10<sup>th</sup> @ 5:00 pm EST**
- ☐ Deadline for Quizzes 4, 5, 6, 7: **Friday December 5<sup>th</sup> @ 5:00 pm EST**
- ☐ Classes end: December 9<sup>th</sup>
- ☐ Final exam set by the Registrar's office December (to be announced).

## Course Description

This half-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 our knowledge of Earth's geology applies to other planetary bodies in the

Solar System. We will end the course with a discussion of potential extraterrestrial life. As technology improves and as more and more space vehicles probe beyond Earth, knowledge expands dramatically. This course emphasizes qualitative approaches to the topics included, thus is appropriate for all students, irrespective of backgrounds.

### **Course Objectives**

- The primary goal of the course is to gain an appreciation of what we know about the Solar System, and how we know what we know.
- We will learn to recognize the processes of evolution of a star-planet system, and we will see that the evolution we know best – that of Earth – may not apply well elsewhere.
- We need to understand the logic of a scientific study: from observation and gathering of evidence to hypothesis and, eventually, refined theory.
- We will learn to write scientific reports; an assigned topic will be researched and presented in scientific format.

### **Delivery Mode**

The course content course is entirely on-line and mostly asynchronous. Asynchronous means you set your own schedule. Chapters are provided as PDF files. A suggested reading schedule is provided below. Quizzes are on-line and asynchronous (not timed). Exams will be synchronous, on-line, timed, and proctored. This means you need to write the exam online at the scheduled time.

## **4. Course Materials**

### **Course materials**

All course material will be posted to OWL: <http://owl.uwo.ca> There is no additional textbook.

Students should check OWL 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, 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**

It is your responsibility to maintain access to the internet for the duration of the course.

To complete the exams for this course you will require a stable internet connection and a computer with a working webcam and microphone (not a tablet, nor iPad). I pads are not supported. It is YOUR responsibility to be able to take and complete the exams.

## Course Outline

Each Unit contains an Introduction, a Self-Test, 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 Studying the Material” under the Course Notes.](#)

1. Unit 1: Basic concepts
  - Chapter 1 – Scientific Theory and the Big Bang
  - Chapter 2 – Time and Space
  - Chapter 3 – Matter and the Nebular Hypothesis
2. Unit 2: The Solar System
  - Chapter 4 – A Star called Sun
  - Chapter 5 – Geometry of the Solar System
3. 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 \*

4. Unit 4: From Asteroids to Meteorites
  - Chapter 12 – Asteroids
  - Chapter 13 – Meteorites
5. Unit 5: The Gas Giant Planets
  - Chapter 14 – Jupiter and family
  - Chapter 15 – Saturn and family
  - Chapter 16 – Uranus and Neptune
6. Unit 6: Plutoids, TNOs and Comets
  - Chapter 17 – Plutoids and TNOs
  - Chapter 18 – Comets
7. Unit 7: Extraterrestrial Life
  - Chapter 19 – Life in the Universe

\* The Final exam is not cumulative and covers the Unit 4 Intro to Chapter 19 \*

### Suggested weekly schedule

This is a suggested schedule – you should plan your own schedule according to your reading speed and your other obligations. There are 2 weeks without suggested readings to allow time to work on your essays and study for the midterm. Plan ahead, read regularly and keep up with the chapters.

Week 1, starts September 4<sup>th</sup> (23 pages)

- ☐ Read the introductory materials and familiarize yourself with course site on OWL
- ☐ Unit 1 Introduction
- ☐ Chapter 1
- ☐ Chapter 2

Week 2, starts September 8<sup>th</sup> (35 pages)

- ☐ Chapter 3
- ☐ [Quiz 1](#)
- ☐ Unit 2 Introduction
- ☐ Chapter 4

Week 3, starts September 15<sup>th</sup> (41 pages)

- ☐ Chapter 5
- ☐ [Quiz 2](#)
- ☐ Unit 3 Introduction
- ☐ Chapter 6
- ☐ Chapter 7

Week 4, starts September 22<sup>nd</sup> (44 pages)

- ☐ Chapter 8
- ☐ Chapter 9
- ☐ [Quiz 3a](#)
- ☐ Chapter 10

Week 5, starts September 29<sup>th</sup> (29 pages)

- ☐ Chapter 11 (This is the end of the material that will be on the midterm)
- ☐ [Quiz 3b](#)

Week 6, starts October 6<sup>th</sup> (no readings)

- ☐ [Study for Midterm](#)
- ☐ [ProctorTrack Onboarding: Friday October 10<sup>th</sup> by 5:00 pm](#)

Week 7, starts October 13<sup>th</sup> Tentative week for Midterm

Week 8, starts October 20<sup>th</sup> (33 pages)

- ☐ Unit 4 Introduction
- ☐ Chapter 12

- ☐ Chapter 13
- ☐ [Quiz 4](#)

Week 9, starts October 27<sup>th</sup> - (29 pages)

- ☐ Unit 5 Introduction
- ☐ Chapter 14

November 3<sup>rd</sup> Reading Week

Week 10, starts November 10<sup>th</sup> (38 pages)

- ☐ Chapter 15
- ☐ Chapter 16
- ☐ [Quiz 5](#)

Week 11, starts November 17<sup>th</sup> (32 pages)

- ☐ Unit 6 Introduction
- ☐ Chapter 17 Pluto
- ☐ Chapter 18 Comets
- ☐ [Quiz 6](#)

Week 12, starts November 24 (22 pages)

- ☐ Unit 7 Introduction
- ☐ Chapter 19
- ☐ [Quiz 7](#)
- ☐ Deadline for posting to the Forums: **Friday, December 5<sup>th</sup>, at 5:00 pm**
- ☐ Deadline for Quizzes: **Friday, December 5<sup>th</sup>, at 5:00 pm**
- ☐ Deadline for participating in the OWL polls: **Friday, December 5<sup>th</sup>, at 5:00 pm**
- ☐ Have you completed the course and instructor evaluation survey?

## 5. Methods of Evaluation - All dates and deadlines are Eastern Standard Time (EST)

- ☐ 35% Mid-Term **To be announced on OWL**
  - Exam will be on-line, proctored, and synchronous.
  - *This covers Units 1, 2 and 3 inclusive (to the end of Chapter 11)*
  
- ☐ 35% Final Exam (**Date and time to be determined by the Registrar's office**)
  - Exam will be on-line, proctored and synchronous.
  - *This covers Units 4, 5, 6 and 7. The final exam is not cumulative.*
  
  
- ☐ 15% Participation Deadline: **Friday, December 5<sup>th</sup> at 5:00 pm (EST)**
  - Participation in online forums and online polls throughout the OWL Lessons pages is required. Please see **"The Exceptional Contributor"** below. You will also be required to post ONE photo that YOU took during the semester that relates to the courses' theme. The photo could be: The Moon, a meteor, a comet, the Northern Lights. Star tracks do not count as those stars are beyond our Solar System. Tips on Night Sky Photography will be posted in the Announcements.
  
  
- ☐ 15% Graded Quizzes: **October 10th for quizzes 1, 2, 3a, 3b whereas December 5th at 5:00 pm (EST)**
  - There are 8 graded quizzes (numbered 1, 2, 3a, 3b, 4, 5, 6, 7).
  - There are also 8 self-tests available as practice. These are not graded.
  - You should try to complete the quizzes each week as you read the related chapters.
  - Spelling and grammar count on the quizzes! Misspelled words will not be recognized.
  - The quizzes are automatically administered through the OWL system. **Don't wait to submit your quizzes until the last minute!** Last minute computer problems will not be accepted as grounds for accommodation.

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### The Exceptional Contributor: “The Class Was Better Because You Were Here”

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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. 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 me an email message, consider posting your query to the forum where you may get a quicker response and allow other students to benefit from the discussion. Be sure to check regularly for new forum posts.

As part of the learning process, I expect all students to participate actively online. ***You are expected to contribute one post to the forums and to reply to two of your classmates’ posts each week starting September 8th.*** Please make your posts engaging, thought provoking, and relevant. Try to provide clear, concise, and correct explanations that help others gain a better understanding of concepts. There are also polls scattered throughout the course notes – **please complete the polls and see how your classmates responded.** Remember that 5% of your grade is assigned to participation. Here are some guidelines to keep in mind:

- You make outstanding, original, and informative posts.
- You make highly attentive and constructive comments on other people's posts.
- You ask questions that are penetrating or help clarify.
- You contribute strategically (understanding that there are other students in the class).
- You actively encourage others to express their ideas.
- You use language that communicates interest in what others are saying.
- You hand in your assignments on time.
- You interact constructively with the TAs and instructor.
- You are aware of your responsibilities for the course as outlined in this Syllabus.

## Accommodated Evaluations

Midterm: Students that have an excused absence (accommodation from an academic counselor) will receive the following accommodations:

- A make-up midterm will be offered; date to be announced
- If you have a legitimate reason for missing both the mid-term and the make-up midterm, you will receive an “incomplete” (INC) in the course and write the midterm the next time the course is offered. **The final exam is not cumulative and will not be re-weighted. No exceptions.**

## Quizzes

- The quizzes are automatically graded through the OWL system. There are no accommodations for the quizzes. Do them early. **Don't wait to submit your quizzes until the last minute!** Last minute computer problems will not be accepted as grounds for accommodation.

## Course-specific conditions that are required to pass the course:

You must receive a 50% overall to pass the course.

## 6. 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 are encouraged to contact Accessible Education, 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](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf)

Students should note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences must be submitted to the Academic Counselling office of a student's Home Faculty.**

## 7. Academic Policies

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

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, 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:** Calculators, phones and other electronic devices are not permitted nor required for exams.

**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 source, they must acknowledge their debt by using proper referencing. For more information see Scholastic Offence Policy in the Western Academic Calendar.

**TURNITIN:** 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>).

**Remote Proctoring:** Tests and examinations in this course will be conducted using a remote proctoring service, such as Proctortrack. 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**. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remoteproctoring.uwo.ca>

Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. Ipads are NOT supported. Information about the technical requirements are available at the following link: <https://www.proctortrack.com/tech-requirements/>

## 8. 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/>

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

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at [https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html)

To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca)

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 [http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html) 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.

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