**EPS SCI 2 SCIENCE IN THE MOVIES**

Winter 2025 - Lecture: TR 9:30am-10:45am, La Kretz Hall 110

<https://bruinlearn.ucla.edu/courses/200034>



Welcome to Science in the Movies! This course is designed to help non-science majors and others fulfill a general education requirement while learning about Earth, Planetary, and Space Sciences through the power of film. We will watch and analyze movies to describe natural phenomena and to review how scientists figure things out and solve problems. In particular, we will describe the role of scientists in mitigating natural disasters, solving environmental problems, and enabling space exploration. The cinematic treatment of these science topics will provide opportunities to distinguish between facts and exaggerations, develop information literacy, and sharpen critical thinking skills. The material in this course will be presented through engaging lectures supported by video clips, demonstrations, and active learning activities. Instructional format: Lectures 2.5h/week, Discussion: 1h/week.

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#### Meet your Faculty and TAs

**Instructor**:

**Name Office Email Office hours**

Jean-Luc Margot Geology 5642 [jlm@epss.ucla.edu](mailto:jlm@epss.ucla.edu) T 10:45–11:45 am

**Teaching assistants:**

**Name Office Email Office hours**

TBD Geology TBD [tbd@gmail.com](mailto:tbd@gmail.com) TBD

TBD Geology TBD [tbd@gmail.com](mailto:tbd@gmail.com) TBD

TBD Geology TBD [tbd@gmail.com](mailto:tbd@gmail.com) TBD

TBD Geology TBD [tbd@gmail.com](mailto:tbd@gmail.com) TBD

Email addresses are provided for administrative questions and not for scientific questions. Please make use of lectures, discussion sections, and office hours to ask scientific questions.

#### Course Organization

This course will consist of two 75-minute lectures per week and one fifty-minute discussion section per week. You will be asked to watch one movie per week prior to that week’s lectures, **including prior to our first lecture**. During the lectures, we will describe the course material, review specific movie scenes, perform demonstrations, and conduct active learning exercises. During the discussion sections, you will review the more difficult points with a teaching assistant, solve quantitative problems, and earn participation credit through structured activities. We may also hold review sessions prior to exams to answer questions about the course material.

We encourage you to constantly refer to this syllabus, specifically the “Course Schedule” section, or Bruinlearn, throughout the quarter, as the schedule may evolve in response to circumstances beyond our control.

#### Course Materials

Movies will be accessible through Bruinlearn. Lecture notes will be posted on Bruinlearn.  
  
There is a required textbook for this class:

S. Marshak et al., *Natural Disasters*, 1st ed., Norton 2022, ISBN 9780393532623

Assigned readings are listed in the [Course Schedule](#_Course_Schedule_1). Either the [Bruin One Access](https://www.uclastore.com/bruin-one-access) or the Inclusive Access programs provide a 180-day rental of the eBook version of the book for a fee. You will automatically be charged the fee by the UCLA bookstore unless you explicitly opt out by Friday of the 2nd week of classes. If you want to rent the eBook version, do nothing. If you do not want to rent the eBook version, you must take action to opt out. Any questions regarding these programs should be directed to [bruinoneaccess@asucla.ucla.edu](mailto:bruinoneaccess@asucla.ucla.edu).

#### Learning Goals

##### Students will develop information literacy.

###### Students will distinguish between opinion and fact.

###### Students will be mindful of information they encounter, recognizing contexts or situations when it is necessary to seek out other sources or data.

###### Students will identify, locate, and critically evaluate information sources to ensure they are reliable, accurate, and scholarly, such as peer-reviewed scientific literature.

###### Students will explain the peer-review process in science and its role in critical evaluation and validation of published, scientific findings.

##### Students will develop scientific literacy by addressing current, critical issues and topics in science that are personally meaningful in daily life and/or connected to the needs of society (e.g., climate change, natural disaster preparedness, public safety).

###### Students will recognize the benefits of science to society and their everyday life.

###### Students will cite examples of the ways in which scientists and scientific research contribute to society.

###### Students will describe the interactions between humans and their physical world and the positive and negative effects of this interaction.

###### Students will explain why some issues perceived as “controversial” in the public domain are not controversial among scientists.

##### Students will actively engage in the scientific process of inquiry, analysis, problem solving, and quantitative reasoning.

###### Students will explain how scientists answer scientific questions and test a hypothesis.

###### Students will become confident working with numerical data and appreciate order-of-magnitude estimates.

###### Students will complete calculations to solve quantitative problems.

###### Students will apply units of measurement to quantities (e.g., size, mass, time).

##### Students will demonstrate knowledge of key Earth, Planetary, and Space Sciences principles.

###### Students will explain the physical processes that govern the natural world, including gravity and electromagnetism.

###### Students will describe the major characteristics of the interiors, surfaces, and atmospheres of Earth and other planets.

###### Students will describe major geological processes, including volcanism, tectonism, and impact cratering, as well as the natural disasters associated with these processes (e.g., volcanic eruptions, earthquakes, tsunamis, asteroid/comet impacts).

###### Students will describe the causes and consequences of global climate change.

###### Students will describe the basic ideas of special and general relativity.

###### Students will describe the prospects and methods for the search for life in the universe.

#### Cultivating an Inclusive Classroom Together

Your instructor and TAs are committed to ensuring that our classroom environment is safe and welcoming. We will strive to foster a classroom environment that is inclusive and supportive at all times. We believe in the growth mindset and in empowering you with new skills and confidence in your abilities. If at any time you feel that a student, TA, or professor is deviating from these guidelines, please reach out to us so that we may address the situation as quickly as possible.

#### Assignments and Participation

There will be several opportunities for you to demonstrate your participation in the class and your understanding of the material.

Grading components of the course:

In-class quizzes about each movie 5%

Course evaluation at the end of the quarter 5%

Discussion section participation 20%

Homework 20%

Midterm exam 20%

Final exam (cumulative) 30%

In-class quizzes will give you an opportunity to demonstrate that you have watched each movie. They will be graded pass/fail. There will be one quiz offered per week. For full credit, pass at least 5 out of 10 quizzes. There are no make-up quizzes.

Discussion section participation is graded on the basis of in-section group activities that will be graded pass/fail. There will be one activity offered per week. For full credit, pass at least 5 out of 10 activities in your assigned section. There are no make-up group activities.

Homework is intended to reinforce the learning goals, e.g., improve your quantitative reasoning skills. Homework is assigned through Bruinlearn and is due at the date specified on Bruinlearn, typically one week later. Late homework is not accepted. There are typically eight homework assignments distributed throughout the quarter. There are no make-up homework assignments. However, the two lowest grades on your homework assignments will be dropped automatically and will not count towards your final grade.

The midterm and final exams are typically multiple-choice, open-book-but-closed-internet, take-home exams with approximately 25 (midterm) and 40 (final) questions offered through Bruinlearn. Students can take the exam in one 2-hour sitting at a time of their choice within a prescribed 72-hour window. The exams are intended to assess your knowledge of the material, with a focus on important facts, concepts, and processes as opposed to unimportant factoids. The resources that are authorized for use during the exams are your textobook, all lecture and discussion materials, and course videorecordings. Web browsers (other than Bruinlearn tab), search engines, online calculators, and AI tools are not allowed. Collaboration is not allowed.

#### Course Grading Scale

|  |  |
| --- | --- |
| Letter grade | Percentage |
| A+ | 95%–100% |
| A | 93%–94.99% |
| A- | 90%–92.99% |
| B+ | 87%–89.99% |
| B | 83%–86.99% |
| B- | 80%–82.99% |
| C+ | 77%–79.99% |
| C | 73%–76.99% |
| C- | 70%–72.99% |
| D+ | 67%–69.99% |
| D | 63%–66.99% |
| D- | 60%–62.99% |
| F | 0–59.99% |

We grade on the basis of competencies, not competition. Your letter grade will be determined by your overall final numerical grade. We will use the table to the right or a more generous version of this table to assign letter grades. There are no quotas: if everyone scores 95%, everyone gets an A+. We very strongly discourage fruitless requests to deviate from the letter grade that you earned: our commitment to equity and fairness prevents us from deviating from the grading scale, regardless of your proximity to a letter grade boundary. Please resist the urge to ask for an exception.

#### Courses and GE Credits

This course is a 4-credit course without a lab component.

GE Credit Acknowledgment: Upon successful completion of this course, students will satisfy the General Education requirement in the area of “Physical Sciences without Lab Credit (Scientific Inquiry)” for the College of Letters and Science.

#### Academic Accommodations

Students needing academic accommodations based on a disability should contact the [Center for Accessible  Education](https://cae.ucla.edu/) (CAE) at Murphy Hall A255 (310-825-1501). Students should contact CAE as soon as possible since reasonable notice is needed to coordinate accommodations.

#### Course Schedule

|  |  |  |  |
| --- | --- | --- | --- |
| **Number**  **Date** | **Title** | **Themes / Objectives** | **Movie / Reading** |
| Lecture 1  Tue Jan. 7 | Gravity | * Course policies and outline * Scientific method * Force, momentum, energy | Gravity (2013) |
| Lecture 2  Thu Jan. 9 | Gravity | * Newton’s laws * Gravity * Kepler’s laws |  |
| Lecture 3  Tue Jan. 14 | Electromagnetism | * Atomic structure * Electromagnetic force * Light | The Dish (2000) |
| Lecture 4  Thu Jan. 16 | Electromagnetism | * Waves * Radiation laws * Light-matter interactions |  |
| Lecture 5  Tue Jan. 21 | Planetary interiors | * Matter * Earth’s interior structure * Formation of planets | The Core (2003) |
| Lecture 6  Thu Jan. 23 | Planetary interiors | * Differentiation * Thermal evolution * Magnetic fields | Chapter 2, Appendix |
| Lecture 7  Tue Jan. 28 | Planetary surfaces | * Formation of elements * Rocks and minerals * Geologic processes | The Martian (2015) |
| Lecture 8  Thu Jan. 30 | Planetary surfaces | * Geologic time * Mercury, Venus, Mars * Moon, Io, Europa, Titan | Chapter 2 |
| Lecture 9  Tue Feb. 4 | Planetary atmospheres | * Structure, composition * Greenhouse effect * Climate change | The Day After Tomorrow (2004) |
| Lecture 10  Thu Feb. 6 | Planetary atmospheres | * Atmospheric escape * Venus, Mars, Titan * Habitable zone | Chapters 8 and 15 |
| Feb. 6 – 9 | **Midterm exam (Lectures 1-10)** |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Number**  **Date** | **Title** | **Themes / Objectives** | **Movie / Reading** |
| Lecture 11  Tue Feb. 11 | Volcanism | * Plate tectonics * Plate boundaries * Magma | Dante’s Peak (1997) |
| Lecture 12  Thu Feb. 13 | Volcanism | * Volcanic types * Volcanic structures * Volcanic hazards | Chapters 2 and 4 |
| Lecture 13  Mon Nov. 13 | Tectonism | * Faults * Earthquakes * Seismology | San Andreas (2015) |
| Lecture 14  Wed Nov. 15 | Tectonism | * Earthquake hazards * Tsunamis * Early warning systems | Chapters 3 and 6 |
| Lecture 15  Mon Nov. 20 | Cratering | * Asteroids and comets * Planetary surface ages * Impact hazards | Deep Impact (1998) |
| Lecture 16  Wed Nov. 22 | Cratering | * Mass extinction events * Trajectory predictions * Mitigation strategies | Chapters 6 and 16 |
| Lecture 17  Mon Nov. 27 | Relativity | * Special relativity * General relativity * Tests of general relativity | Interstellar (2014) |
| Lecture 18  Wed Nov. 29 | Relativity | * Interstellar travel * UFOs/UAPs * Critical thinking |  |
| Lecture 19  Mon Dec. 4 | Life in the universe | * Exoplanets * Detection methods * Biosignatures | Contact (1997) |
| Lecture 20  Wed Dec. 6 | Life in the universe | * Technosignatures * The Fermi “paradox” * SETI at UCLA |  |
| Finals week | **Final exam  (Lectures 1-20)** |  |  |

#### Enrollment Management Policies

No-PTE policy: Enrollment is managed online by the UCLA Registrar. A PTE is not required. Due to the volume of emails, your instructional team may not answer requests for PTEs.

No-switching-section policy: You must attend the discussion section in which you are registered and you may not attend or earn participation credit in a different discussion section. The instructional team is unable to modify enrollments, which are managed by the UCLA Registrar and Student Affairs Officers.

Late enrollment policy: Although students are allowed to enroll at any time, late-enrolled students do not receive exemptions from course and grading policies. Due to the volume of emails, your instructional team may not answer requests for exemptions.

#### Copyright Policy

Faculty members hold copyright in the course materials they create. As a result, students are not allowed to reproduce, distribute, or publicly post course materials without explicit faculty permission, except as provided by U.S. copyright law and [University policy](https://copyright.universityofcalifornia.edu/resources/ownership-course-materials.html). Course materials include, but are not limited to, lecture notes, PowerPoint presentations, tests, and problem sets.

You may:

* take notes and make copies of course materials for your own personal use
* share your notes with another student who is registered and enrolled in this course

You may not:

* reproduce, distribute or display (post/upload) lecture notes, recordings, graded assignments/exams, or course materials without my express written consent
* allow others to do so

#### Academic Integrity

UCLA is a community of scholars. In this community, all members including faculty, staff and students alike are responsible for maintaining standards of academic honesty. As a student and member of the University community, you are here to get an education and are, therefore, expected to demonstrate integrity in your academic endeavors. You are evaluated on your own merits. Cheating, plagiarism, collaborative work, multiple submissions without the permission of the professor, or other kinds of academic dishonesty are considered unacceptable behavior and will result in formal disciplinary proceedings usually resulting in suspension or dismissal.

Forms of Academic Dishonesty

As specified in the UCLA Student Conduct Code, violations or attempted violations of academic dishonesty include, but are not limited to, cheating, fabrication, plagiarism, multiple submissions or facilitating academic dishonesty (see below for detailed definitions).

While you are here at UCLA, you may find yourself in a situation where cheating seems like a viable choice. You may rationalize to yourself that “Everyone else does it”…Well, they don’t. And will that rationalization matter when you get caught? No! If you are unsure whether what you are considering doing is cheating, just ask yourself …how would you feel if your actions were public, for anyone to see? Would you feel embarrassed or ashamed? If the answer is yes, that’s a good indicator that you may be crossing a line.

If after reviewing the information below, you are still unclear about any of the items – don’t take chances – Ask your TA or your Professor. Know the rules – Ignorance is not a defense. In addition, avoid placing yourself in situations which might lead your TA or Professor to suspect you of cheating. For example, during an exam don’t sit next to someone with whom you studied in case your answers end up looking “too similar.”

Alternatives to Academic Dishonesty:

Seek out help – meet with your TA or Professor; ask if there is special tutoring available.

Drop the course – can you take it next quarter when you might feel more prepared and less pressured?

See an academic counselor or a counselor at CAPS (see above).

Remember, getting caught cheating affects more than just your GPA. How will you explain to your parents, family, and friends that you have been suspended or dismissed? How will it affect your financial aid award and/or scholarship money? Will you be required to, and be able to pay back that money if you are no longer a student? If you live in the residence halls, where will you go if you are told you can no longer live there?

You have worked very hard to get here, so don’t cheat! If you would like more information, please consult the Dean of Students’ Office. Read the definitions below to understand what is considered a violation of academic integrity. Your TAs and Professors expect academic integrity at all times and they will report alleged violations to the Dean of students. **Collaboration between students is never permitted in EPS SCI 3 except when explicitly allowed by your instructor.**

Cheating

Unauthorized acquiring of knowledge of an examination or part of an examination

* Allowing another person to take a quiz, exam, or similar evaluation for you
* Using unauthorized material, information, or study aids in any academic exercise or examination
* Unauthorized collaboration in providing or requesting assistance, such as sharing information
* Unauthorized use of someone else’s data in completing a computer exercise
* Altering a graded exam or assignment and requesting that it be regraded

Plagiarism

Presenting another’s words or ideas as if they were one’s own

* Submitting as your own through purchase or otherwise, part of or an entire work produced verbatim by someone else
* Paraphrasing ideas, data or writing without properly acknowledging the source
* Unauthorized transfer and use of someone else’s computer file as your own
* Unauthorized use of someone else’s data in completing a computer exercise

Multiple Submissions

Submitting the same work (with exact or similar content) in more than one class without permission from the instructor to do so. This includes courses you are currently taking, as well as courses you might take in another quarter

Facilitating Academic Dishonesty

Participating in any action that compromises the integrity of the academic standards of the University; assisting another to commit an act of academic dishonesty

* Taking a quiz, exam, or similar evaluation in place of another person
* Allowing another student to copy from you
* Providing material or other information to another student with knowledge that such assistance could be used in any of the violations stated above (e.g., giving test information to students in other discussion sections of the same course)

Fabrication

Falsification or invention of any information in an academic exercise

* Altering data to support research
* Presenting results from research that was not performed
* Crediting source material that was not used for research

#### Other Campus Resources

Places to go for help when you are feeling overwhelmed and need personal and/or academic assistance:

Academic Counseling

Academic Advisors aim to collaborate with you to support your academic, professional, and personal development. We encourage you to contact your academic advisor early and often to ensure your success throughout your studies. To find the location and phone number, look at the current schedule of classes under “Academic Counseling”.

Website: [h ttps://www.registrar.ucla.edu/Academics/Academic-Counseling](https://www.registrar.ucla.edu/Academics/Academic-Counseling)

Counseling and Psychological Services (CAPS)

CAPS provides counseling services to students who are in need of support in any way 24 hours a day, 7 days a week. Appointment can be made by contacting CAPS during their office hours Monday - Friday 9 am - 4 pm. Crisis support is available 24/7 by phone at 310-825-0768.

Website: [www.counseling.ucla.edu](http://www.counseling.ucla.edu)

Phone Number: 310-825-0768

Campus Location: John Wooden Center, 221 Westwood Plaza

Dean of Students Office

Website: [www.deanofstudents.ucla.edu](http://www.deanofstudents.ucla.edu/)

Phone Number: 310-825-3871

Campus Location: 1206 Murphy Hall

Title IX Office

Title IX prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, you can receive confidential support and advocacy at the CARE Advocacy Office for Sexual and Gender-Based Violence, 1st Floor Wooden Center West, [CAREadvocate@careprogram.ucla.edu,](mailto:CAREadvocate@careprogram.ucla.edu) 310.206.2465. You can also report sexual violence or sexual harassment directly to the University’s Title IX Coordinator, 2241 Murphy Hall, [titleix@conet.ucla.edu,](mailto:titleix@conet.ucla.edu) 310.206.3417. Reports to law enforcement can be made to UCPD at 310.825.1491.