



Philosophy 2203 (570)
HISTORY OF SCIENTIFIC THOUGHT
Fall/ Winter 2025-2026

Instructor: M. Tait
Email: mtait8@uwo.ca

Course Information

Calendar Description:

A general historical survey of ideas in the physical and biological sciences from antiquity to the early 20th century. This course will also examine issues in scientific methodology as well as the impact of scientific ideas on society.

Antirequisite(s): History of Science 2200E.

Extra Information: 3 hours.

Course Weight: 1.00

Breadth: Category B

Subject Code: PHILOSOP

Notice: Unless you have either the requisites for this course (fulfilment of pre-requisites, no anti-requisite conflicts), or special permission from your Dean to enrol 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.

King's University College
Department of Philosophy
Philosophy 2203: History of Scientific Thought
2025-2026

Mode of instruction: In-person

Instructor: Dr. Morgan Tait

Contact Information: Email: mtait8@uwo.ca; office location and phone number TBD. Note that email is the best means of contact.

Office Hours: *Office Hours information can be found on Brightspace.* Please email to schedule an appointment to avoid conflicts.

Prerequisite: None

Antirequisite: History of Science 2200E

DETAILED COURSE DESCRIPTION

This course is an introduction to the history and philosophy of science and technology. The course will survey the history of philosophical engagement with the natural world from ancient Greece to the present, while also examining some contemporary developments in science and technology through a historical lens. Contemporary topics to be examined include surveillance capitalism and the rise of behaviorism in social media and AI, the Anthropocene and climate change, technocracy and ecomodernism, and chaos and complexity. We will also read classic works by such important thinkers as Plato, Aristotle, Ptolemy, Copernicus, Galileo, Descartes, Newton, and Einstein. Other topics to be discussed include the nature of matter and motion, the order of the cosmos, the Copernican Revolution, and the Scientific Revolution.

The course will be divided into five units (see schedule below). The first four units are organized around the historical development of scientific ideas. The fifth and final unit will be devoted to a discussion of contemporary social challenges posed by the development of the sciences and technology, viewed through the historical lens developed throughout the course.

TEXTS

Required: McGrew, T., Alspector-Kelly, M., and Allhoff, F. *Philosophy of Science: An Historical Anthology*. Wiley-Blackwell, 2009. The title is available in new and used formats, with prices included, [here](#). The textbook will also be made available on course reserve at the library and at the university bookstore.

Additional supplementary materials, including articles and other media such as podcasts, will be made available on OWL at no additional cost.

OBJECTIVES

The course has three main objectives:

- 1) To gain an appreciation for the historical evolution of scientific inquiry and methodology, in the context of the larger philosophical development of Western thought;
- 2) To examine some of the contemporary challenges posed by science and technology in the 21st century, and to situate these challenges in the context of the historical development of scientific ideas;
- 3) To develop the capacity to understand, synthesize, and critically examine challenging primary source material, including classic historical and philosophical works

REQUIREMENTS

There will be a midterm on November 27th, and a final exam covering all course material during the April examination period. Students are expected to attend and participate in class discussion and write occasional exit slips and in-class quizzes (see notes below).

<i>In-class Midterm (November 27th)</i>	20%
<i>Final Exam:</i> (To be scheduled during the April examination period)	30%
<i>Six in-class quizzes (three per term; see dates and discussion below):</i>	30%

In-class surveys (based on in-class discussion: see note below): 10%

Exit Slips (see details below): 10%

All extensions or make-up/special exams will be granted only where the student is able to provide the Academic Dean's Office with appropriate documentation.

Tentative Schedule of Readings

(Note that schedule is subject to change with advance notice; page numbers taken from *Philosophy of Science: An Historical Anthology*)

Unit 1: Ancient Greek, Roman and Pre-Modern Ideas

Week 1 : Introduction: a survey of contemporary issues in science and society, and an introduction to the history of science

Week 2: Plato's Cosmology and Zeno's paradoxes of motion (pp. 24-30)

Week 3: Aristotle: The Structure and Motion of the Heavenly Spheres; The Cosmos and the Shape and Size of the Earth; Change, Natures, and Causes (pp. 31-43, 49-56)

Week 4 : Aristotle: The Structure and Motion of the Heavenly Spheres; The Cosmos and the Shape and Size of the Earth; Change, Natures, and Causes (pp. 31-43, 49-56)

(continued)

Week 5: Lucretius: The Explanatory Power of Atomism; Ptolemy: The Earth: Its Size, Shape and Mobility Maimonides: Against the Reality of Epicycles and Eccentrics (pp. 64-73)

Week 6: Maimonides: Against the Reality of Epicycles and Eccentrics (pp. 64-73); Buridan: Impetus and its Applications; Oresme: The Possibility of a Rotating Earth (pp. 82-94);

Unit 2: The Scientific Revolution

Week 7: Copernicus: The Motion of the Earth (pp. 82-94, 112-122)

Week 8: Kepler: On Arguments about a Moving Earth; Galileo: Tradition and Experience; A Moving Earth is More Probable than the Alternative

Week 9: Galileo: The Ship and the Tower; The Copernican View Vindicated (pp. 125-132; 135-137)

Week 10: Descartes: Rules for the Discovery of Scientific Truth; Rationalism and Scientific Method (pp. 150-161, 194-205)

Week 11: Newton: Inductive Methodology; Space, Time and the Elements of Physics; (pp. 164-173)

Week 12: Four Rules of Reasoning; General Scholium; The System of the World (pp. 174-182)

Unit 3: From the Early Modern Period to the 19th Century

- Week 13: Locke: Human Knowledge: Its Scope and Limits; Hume: The Problem of Induction (pp. 206-209; 219-225)
- Week 14: Hume: The Nature of Cause and Effect; Lavoisier: The Nature of Scientific Explanation (pp. 226-231; 245-249)
- Week 15: Laplace: Determinism, Ignorance and Probability (pp. 250-253)
- Week 16: Mill: An Empiricist Account of Scientific Discovery (pp. 258-263)
- Week 17: Georges Cuvier: Catastrophist Geology; Charles Lyell: Uniformitarian Geology; a brief in-class discussion of chaos theory (pp. 269-277)
- Week 18: Darwin: The Explanatory Scope of the Evolutionary Hypothesis (pp. 278-280)
- Week 19: Peirce: Induction as a Self-Correcting Process; Peirce: The Nature of Abduction (pp. 281-286)

Unit 4: The Twentieth Century

- Week 20: Poincare: The Role of Hypotheses in Physical Theory; Duhem: Against Crucial Experiments (287-299)
- Week 21: Einstein: On the Method of Theoretical Physics; Twentieth Century Developments in Physics (pp. 300-303, 307-313)

Week 22: Introduction to Positivism: The 'Received View'; Carnap:
Empiricism, Semantics and Ontology (pp. 315-327, 356-365)

Unit 5: Science and Contemporary Society

Week 23: Climate Change and the Anthropocene: the greatest social and scientific challenge of our time? (Readings to be posted on OWL)

Week 24: Technology, modernism and Ecomodernism: a technocratic or techno-optimist future? (Excerpts from Steven Pinker: *Enlightenment Now*)

Week 25: Retrospective synthesis and exam review

IN-CLASS QUIZZES

In-class quizzes will consist of a mix of multiple-choice and short-answer questions. Each quiz will require 20 minutes of in-class time. At the end of the term, **your best 5 out of 6** quiz grades will be used to calculate the quiz component of your overall grade. If you are unable to attend a class quiz for any reason, please consult the university [accommodation](#) page for additional information. In-class quizzes will take place on the following dates:

- October 2nd;
- October 23rd;
- November 13th;
- January 29th;
- March 5th;
- March 19th.

NOTE REGARDING EXIT SLIPS AND SURVEYS

Exit slips will be written periodically throughout both terms. 15 minutes of class time will be allocated to writing a personal reflection or answering an open-ended question to be posed in class related to course material. There are no 'right answers' for student responses; however, the exit slips will be graded on a simple pass-fail basis (please include your name, effectively rewarding attendance. Students will be granted one 'grace' day for each term for missing an exit slip. Exit slip scores will be tallied at the end of the year to calculate a grade worth 10% of the course grade.

Surveys will be written periodically throughout both terms. 5 minutes of class time will be allocated to responding to polls given during class. Again, there are no 'right answers' for student responses; however, the surveys will be graded for completion. Survey scores will be tallied at the end of the second term to calculate a grade worth 10% of the course grade.

REGISTRATION

This course satisfies the science credit requirement for students in Arts or Social Sciences. It also is a 2000-level course in Philosophy; however, it is not a credit towards completion of your Philosophy programme if it is counted as a science credit. *Please ensure that you are properly registered in this course and have not taken any of the anti-requisite courses.* The last date for dropping this course without academic penalty is Dec. 1st.

NON-MEDICAL ABSENCES

All requests for accommodation for non-medical accommodation will be handled on a discretionary basis by the instructor.

ACCOMMODATION FOR ILLNESS

Please consult the [Policy on Accommodation for Illness](#) for more information.

SUPPORT SERVICES

Students who are in emotional/mental health distress should refer to Mental https://uwo.ca/health/mental_wellbeing/ for a complete list of options about how to obtain help.

AUDIT

Students wishing to audit the course should consult with the instructor prior to or during the first week of classes.

KING'S UNIVERSITY COLLEGE
GENERAL COURSE POLICIES
2025-2026

1. Academic Accommodations, Consideration for Absences

Academic Accommodation (Accessibility)

Accessibility Services works to ensure that academic programs are accessible to all students, and supports students who may have a condition related to, but not limited to, vision, hearing, mobility, different ways of learning, mental health, chronic illnesses, chronic pain, autism spectrum disorder, ADD/ADHD, and temporary conditions (beyond short-term academic consideration). Accessibility Services provides recommendations for accommodation based on medical documentation or psychological and cognitive assessment. The accommodation policy can be found here [Academic Accommodation for Students with Disabilities](#). Information on Accessibility Services at King's can be found [here](#).

Academic Consideration for Student Absence

If a student is unable to meet a course requirement due to substantial but temporary extenuating circumstances (medical or compassionate), they should follow the procedures below.

In some cases, where instructors have built flexibility into their assessments, this flexibility will already address consideration needs.

Requests for academic consideration should be directed to the Academic Advising Office of your faculty/college of registration. Requests must be made as soon as possible and no later than 48 hours after the missed assessment.

As a rule, documentation is required for academic consideration. For academic consideration requests on medical grounds, the Student Medical Certificate is available at [https://www.kings.uwo.ca/kings/assets/File/currentStudents/courses_enrollment/exams and tests/SMC-Feb-2025.pdf](https://www.kings.uwo.ca/kings/assets/File/currentStudents/courses_enrollment/exams_and_tests/SMC-Feb-2025.pdf).

Students are permitted one academic consideration request without supporting documentation per term per course.

Instructors may designate one assessment per half-course weight as requiring formal supporting documentation. Please refer to the course outline for each course.

For further information, please see:

https://uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf

Absences from Final Examinations

If you miss the Final Exam, contact the Academic Advising Office of your faculty/college 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, or 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).

Religious Accommodation

Students should consult the University's list of recognized religious holidays, and should give notice in writing to the instructor and Academic Advising Office if a course requirement will be affected by a religious holiday/observance. Notice must be given as early as possible, and no later than two weeks prior to an examination, and one week prior to a midterm test date. It is the responsibility of such students to inform themselves concerning the work done in classes from which they are absent and to take appropriate action.

2. Support Services

Accessibility, Counselling and Student Development at King's University College:
<https://www.kings.uwo.ca/current-students/student-services/>

Students experiencing emotional or mental health distress can access services at King's University

College: <http://www.kings.uwo.ca/current-students/campus-services/student-supportservices/personal-counselling/>

Good2talk is a good online and phone 24/7 resource for students and is available in English, Mandarin, and French: <https://good2talk.ca>, 1-866-925-5454

MentalHealth@Western provides a complete list of options about how to obtain help:
https://www.uwo.ca/health/mental_wellbeing/

Academic Support Services at King's University College:
<https://www.kings.uwo.ca/current-students/academic-resources/>

GBSV Support:

King's 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.kings.uwo.ca/about-kings/safe-campus/gender-and-sexual-violence/>

You can reach someone supports at Kings by emailing Care@kings.uwo.ca or calling 519-930-4640 to reach a social worker who can offer help.

You can also reach Western's Gender-Based Violence & Survivor Support Case Manager by email or by calling 519-661-3568.

Further supports can be found on this website: <https://www.kings.uwo.ca/about-kings/safecampus/gender-and-sexual-violence/>

See also https://www.uwo.ca/health/student_support/survivor_support/get-help.html

University Students' Council offers many valuable support services for students, including the health insurance plan: <http://westernusc.ca/services/>

3. Statement on Use of Electronic Devices

Use of Electronic Devices: Unless explicitly stated otherwise, you are not allowed to have a cell phone, or any other electronic device, with you during tests or examinations. Unauthorized possession of such a device during a test or examination constitutes an academic offence.

Use of Laptops, Tablets, and Smartphones in the Classroom: King's University College at Western University acknowledges the integration of new technologies and learning methods into the curriculum. The use of electronic devices such as laptop computers, tablets, or smartphones can contribute to student engagement and effective learning. At the same time, King's recognizes that instructors and students share jointly the responsibility to establish and maintain a respectful classroom environment conducive to learning.

The use of electronic devices by students during lectures, seminars, labs, etc., shall be for matters related to the course at hand only. Students found to be using electronic devices for purposes not directly related to the class may be subject to sanctions under the Student Code of Conduct; see <https://www.kings.uwo.ca/current-students/student-affairs/code-of-student-conduct1/>

Inappropriate use of electronics (e.g., laptops, tablets, smartphones) during lectures, seminars, labs, etc., creates a significant disruption. As a consequence, instructors may choose to limit the use of electronic devices in these settings. In addition, in order to provide a safe classroom environment, students attending in-person class sessions are strongly advised to operate laptops with batteries rather than power cords.

4. Statement on Academic Offences

King's is committed to academic integrity. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, is posted at

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

It is expected that students will submit work that is truly their own, completed without external assistance (human or artificial) except as explicitly permitted by the course instructor. Check with you instructor on what tools, including generative AI (ChatGPT, translation tools, grammarchecking tools) are permitted in the course. Because a tool is permitted in one course, that does not mean it is permitted in other courses.

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; see <https://elearningtoolkit.uwo.ca/tools/Originality Reports - TurnItIn.html>.

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.

5. Copyright of Course Material

Lectures and course materials, including PowerPoint presentations, tests, outlines, and similar materials are protected by copyright. Faculty members are the exclusive owner of copyright in those materials they create. Students may take notes and make copies for their own use. Students may not allow others to reproduce or distribute lecture notes and course materials publicly (whether or not a fee is charged) without the express written consent of a faculty member. Unauthorized sharing of class content is subject to academic discipline.

Similarly, students own copyright in their own original papers and exam essays. If a faculty member wishes to post a student's answers or papers on the course website, they should ask for the student's written permission.

6. Use of Recordings

Participants in this course are not permitted to record the sessions, except where recording is an approved accommodation and/or the participant has the prior written permission of the instructor. Unauthorized recording and/or sharing of class content is subject to academic discipline.

7. Policy on Attendance

Any student who, in the opinion of the instructor, is absent too frequently from class or laboratory periods in any course, will be reported to the Dean of the Faculty offering the course, after due warning has been given. On the recommendation of the department concerned, and with the permission of the Dean of that Faculty, the student will be debarred from taking the regular examination in the course.