It is a challenge to choose what to examine in the last three hundred years of the development of science. Starting with the formation of the first scientific societies in the 17th century, the scientific enterprise has specialized, professionalized and expanded, culminating in the “big science” of twentieth century programs such as the Manhattan Project, the Human Genome Project, and NASA’s ongoing explorations of the Moon and Mars.

This course will offer a selective examination of the past three centuries, and will primarily concentrate on the physical sciences, in particular physics, chemistry, astronomy, and cosmology. We will discuss scientific ideas such as the Big Bang, relativity, plate tectonics, evolution, atomic theory, and radioactivity and see how they have (often unintentionally) radically altered how we humans have come to understand ourselves, our origin, and the nature of the universe.

The course will consist of lectures though students will naturally be encouraged to ask questions and offer opinions on the material. We will be examining these ideas within their historical and social context, but will also be examining them as science. Thus, there will be equations and “difficult” ideas. After completion, you will have acquired a basic understanding of the history and content of the revolutionary scientific ideas of recent times.

**Timetable**

A timetable of lectures, required readings, and assignment due-dates is provided on BlackBoard. Themes examined will include: Science before 1700; Rise of Modern Science; Newton’s Clockwork Universe; Discovering New Planets; Natural Theology in the Eighteenth Century; The Rise of Geology; Professionalization and Popularization in the 19th Century; Darwin & Natural Selection; Eugenics; A History of Paleoanthropology; The Emergence of Ecology; Lavoisier and the Chemical Revolution; Atomic Structure and Radioactivity; Thermodynamics; It’s an Old Earth After All; A Mobile Earth; Einstein & Relativity; Quantum Mechanics; The Big Bang; Science and Religion; Opposing Evolution in America; Uncertainty; The Science and Politics of Climate Change; Science Policy.
Required Texts


The schedule of reading due-dates is online and further readings will be made available there in the form of PDF files. You are required to have completed the readings before the class in question. Material from readings will form the basis for half the questions in the two examinations as well as required written assignments (see below).

The class will make use of BlackBoard and a webpage that will be accessible from the former. Copies of slides shown in class will usually be available at least 12 hours before class time. These will be in PDF format and you are encouraged to print them out so as to facilitate the taking of effective notes.

Required Work

- Two examinations: 20 + 30 = 50%
- 900 word assignment on pre-1700 science = 20%
- Two of four 500-800 word assignments: 2 x 15 = 30%

Written Assignments

You will be provided with a number of opportunities to submit short reflective pieces based on prompts. Further details of these are posted online. You will be required to submit a printed copy (to the Teaching Assistant) and an electronic copy (via BlackBoard) by the start of class on the posted due dates. No late assignments will be accepted. You will be graded based on your argument, your knowledge and use of readings and in-class materials, and the form of your assignment (i.e. spelling and grammar). Should you wish to appeal your grade, you must first discuss the issue with the teaching assistant. If this is unsatisfying, you need to make a written appeal (not an e-mail) including the graded assignment to the instructor before scheduling a meeting with the instructor, teaching assistant, and yourself.

Examinations

There will be two examinations for this course. Please note that due to scheduling difficulties, these occur during regularly scheduled class times, on October 5th and December 7th. As such you will not be allowed to reschedule these and no exceptions will be made. Note that the final examination does not occur during finals week – please plan accordingly. The examinations will begin at 10:45am sharp and will run until 11:45am. You will not be allowed into the classroom after 10:40am so be on time.
Discussion/Participation

While much of the class will be spent in traditional lectures, there will be numerous opportunities for us to discuss and/or clarify issues. You are encouraged to actively participate in our learning community by asking questions and raising issues during class-time.

Attendance

While attendance will not be monitored, failure to show up for class will greatly impact your ability to successfully complete the final examination. Past experience has shown that approximately the same percentage of students who fail to attend class, fail the course.

Neither the teaching assistant nor I will provide details of missed classes. Please remember that arriving late for class is disrespectful both to myself and your fellow students and frequent late arrival will result in an instructor-initiated withdrawal.

Cell Phones and Electronic Devices

I switch my phone off when I come to class; you should do so as well. If you’d rather be texting or surfing the Internet while class is in session, please do so elsewhere. It is insulting both to the instructor and your classmates.

Grading

Final numeric grades will be converted to standard plus/minus grades. No extra credit will be offered, so don’t ask. During the semester, grades for individual assignments will be posted on Blackboard. Final grades will be available on myASU sometime during finals week.

Academic Dishonesty

In the “Student Academic Integrity Policy” manual, ASU defines plagiarism as “using another’s words, ideas, materials or work without properly acknowledging and documenting the source. Students are responsible for knowing the rules governing the use of another’s work or materials and for acknowledging and documenting the source appropriately.” Academic dishonesty, including inappropriate collaboration, will not be tolerated. There are severe sanctions for cheating, plagiarizing and any other form of dishonesty.

Plagiarism is an act of fraud. It involves both stealing someone else’s work and lying about it afterward. Note, that for an act to count as plagiarism, the representation does not have to be intentional. With the advent of the Internet, it has become easier for students to plagiarize. However, somewhat ironically, it has become easier for instructors to detect this form of dishonesty. You will be required to submit printed and electronic copies of all papers. Upon detection of plagiarism, you will automatically be assigned a course grade of XE which denotes failure due to academic dishonesty. Thus, as a minimum, you will fail this course and will not be able to repeat it. An ‘XE’ grade on your transcript will also preclude you from entry into any reputable graduate or professional school. The bottom-line is, DON’T PLAGIARIZE!
Honors Enrichment

Students seeking Honors credit for this course must also enroll in HON 394 (#85115), which will meet weekly on Wednesdays between 4:10 and 5:00pm (in Juniper Hall 101). In these meetings, we will discuss readings related to course content and you will have to present material to the group. To receive four hours of honors credit you will need to attend and contribute to discussion at all meetings. Contribution will include active participation, listening to other students, and engagement with their comments and ideas. Attendance alone will not get you credit.

Final Word

This syllabus is a contract between you and I - by attending this class you declare that you have read, understood, and accept all of the above. The schedule of classes provided online is definitive and takes precedence over the one contained here. Any changes to the above – or other important announcements - will be announced by e-mail through the Blackboard system. It is your responsibility to ensure that you receive all electronic communications, as returned mail will not be resent.