

LPS 60: Making Modern Science (Winter 2017)

Monday/Wednesday/Friday 9-9:50 AM Humanities Hall 262

Section 1 Monday 11-11:50 AM, SST 122

Section 2 Thursday 9-9:50 AM, SSL 129

Instructor:

Jeff Schatz (schatzj@uci.edu)

Office SST 794 – Office hours: Monday/Thursday 2:30-3:30 PM, and by appointment.

Teaching Assistant:

Kevin Kadowski (kadowakk@uci.edu)

Office SST 706/708 — Office hours: Wednesday/Thursday 10-11 AM.

Course Description:

In this course, we will survey the development of science and mathematics from their beginnings in Ancient Greece to quantum mechanics in the 20th century, with a particular focus on key historical episodes in Europe and the Middle East. The course will proceed chronologically, with a particular focus on examining the ways that historical debates and discoveries can shed light on our understanding of contemporary issues about the relation between science and society.

Required Texts:

Making Modern Science: A Historical Survey, by Peter J. Bowler and Iwan Rhys Morus. Chicago: The University of Chicago Press.

All other texts will be available on the Canvas coursespace.

Course Outcomes:

- 1) Read and examine primary sources from the history of science, using secondary sources to aid in building an interpretation of the primary material.
- 2) Articulate claims regarding the nature of science and scientific theories, and defend these claims using historical evidence.
- 3) Examine the similarities and differences between scientific practice before and after the Scientific Revolution.
- 4) Understand the relationship between developments in science and broader social influences, including religion and politics.

Assignments/Evaluations:

- 1) Midterm and Final: The primary means of evaluation for the class will be the Midterm, planned for Wednesday, February 8th (Week 5), as well as a final exam. The exams will be bluebook exams, consisting of a few short definition questions, as well as two short response essays. For both types of questions, you will be given a few questions, and be able to decide which of the given questions to answer. In order to help you prepare for these exams, there will be a study guide consisting of sample questions given out ahead of the exam, as well as review sessions run by your TA. Importantly, the final will **NOT** be cumulative, but will focus on material from after the Midterm.
- 2) Quizzes: There will be online multiple choice quizzes due every Sunday at 7 PM. You can complete the quizzes anytime during that week ahead of the due date. You will have two attempts to complete the quiz, and we will drop your lowest quiz score. The purpose of these assignments is to test your reading comprehension on a weekly basis.
- 3) Short Response Essays: A short (paragraph length) writing assignment will be assigned ahead of every section meeting, to be turned in by or at the start of your section meeting. The purpose of these assignments is to give you practice with the types of questions you will find on the midterm and final.
- 4) Attendance/Participation: Attendance will be taken in each section meeting, and points will be awarded for attending and participating in section activities. Participation need not be restricted to speaking in class, but can also include active listening and note-taking. You may have one unexcused absence from section; after that, any unexcused absences will adversely affect your grade. The purpose of this type of evaluation is to encourage and reward attendance and participation.

Grade Breakdown:

- 30% Midterm Exam
- 30% Final Exam
- 15% Weekly Reading Comprehension Quizzes
- 15% Short Answer Homework Assignments
- 10% Section Attendance/Participation

Policies:

Attendance- Section and class attendance are mandatory.

Late Work- Late work will be docked 10% per day. For example: if a student submitted a homework assignment three days late, and that homework would have received a 90/100 if it were turned in on-time, the student would instead receive 60/100 on the assignment.

Extra Credit- There will be a small amount of extra credit given for filling out the Midterm evaluations. There will be no further opportunities for extra credit in this course.

Regrading Policy- All grades are final, and there is absolutely no regrading of assignments.

Academic Dishonesty and Plagiarism- The penalty for *any* violation of academic integrity -- including but not limited to plagiarism -- is failure for the course and a letter recording the violation sent to the Dean. Please acquaint yourself with UCI's academic integrity policy at <https://aisc.uci.edu/students/academic-integrity/index.php>.

Disabilities and Special Circumstances- I will make every attempt to accommodate special needs of students. If you need special accommodations, please contact myself and the Disability Services Center [(949) 824-7494].

Syllabus Revisions- The syllabus is liable to be changed as the course progresses. Please check it whenever questions arise throughout the next quarter.

Basic Course Outline (See the Canvas Coursespace (https://canvas.eee.uci.edu/courses/3817/files/1268440?module_item_id=120716) for a more detailed schedule)

Unit 1- The Beginnings of Natural Philosophy in Ancient Greece (Jan 11th- Jan 23rd)

Unit 2- Natural Philosophy in the Golden Age of Islam (Jan 25th- Jan 30th)

Unit 3- Developments in Medieval and Renaissance Europe (Feb 1st- Feb 6th)

MIDTERM EXAM (Feb 8th)

Unit 4- Making Modern Science: The Scientific Revolution (Feb 10th- Feb 22nd)

Unit 5- Evolution, Genetics, and the New Biology (Feb 24th- March 3rd)

Unit 6- Psychology Becomes a Science (March 6th- March 8th)

Unit 7- Beyond Mechanism: 20th Century Physics (March 10th- March 17th)

FINAL EXAM (March 22nd)