

## **PLANETS, STARS AND COSMIC ORDER IN WESTERN CULTURE**

Dr. Ido Yavetz

Fall and Spring Semesters

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Office Hours: by appointment

### Short description:

Astronomy and cosmology have the distinction of being the earliest fully mathematical natural sciences. As such, they had a profound influence on Western perceptions of humanity's place in the universe through the idea that the design and operation of the universe follow a set of precise rules. The course will trace the roots of these perceptions in the highly formalized astrology of Ancient Babylonia and in the philosophical traditions of Ancient Greece. While we normally think of "scientific revolutions" as features of early modern Europe and subsequent developments, we will find that between the 10th century BC and the 2nd century AD, understanding of the heavens had undergone several upheavals that easily match recent developments. By the 5th century BC, the idea of the earth as a giant sphere in the middle of the universe was widely accepted by Greek scholars, with measurements of its size that reached high accuracy by the 3rd century BC. No later than the 3rd century BC, Greek astronomers suggested the idea that the earth revolves around its axis while orbiting the sun. They rejected this idea on good scientific grounds, not because of religious constraints or threats of persecution. The course will conclude with an introduction to Ptolemy's astronomical and cosmological contributions. By any present standard, they count among the greatest scientific achievements ever produced, for their successes as well as for the glaring problems they left unsolved.

### Assessment:

Course grade will be determined on the basis of a midterm – a short essay (2-4 pages, 20% of grade) relating to the material covered in the first half of the course, and a final assignment – a 6-8 page essay (80% of grade) on major topics of the entire course.

### Attendance:

Attendance is mandatory. Students are permitted a maximum of three absences without penalty. Any additional absences will affect the final grade and may result in failure of the course.

### Academic conduct:

Plagiarism is taken extremely seriously. Any instance of academic misconduct which includes: submitting someone else's work as your own; failure to accurately cite sources; taking words from another source without using quotation marks; submission of work for which you have previously received credit; working in a group for individual assignments; using unauthorized materials in an exam and sharing your work with other students, will result in failure of the assignment and will likely lead to further disciplinary measures.