

NEW COURSE SPRING 2010

ME 107 Mechanics & Optics in Antiquity

MW 2:00-3:15 pm, B&L 106, 4 credits

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The basic principles of mechanics and optics as they have developed in ancient Greece, Rome, China, Islam, and Western Europe, from 300 BC to 1700 AD.

Examples: the law of the lever (Aristotle and Archimedes); center of gravity (Archimedes); gears, materials, and the Antikythera mechanism; statics and dynamics from the Middle Ages to Leonardo da Vinci and Galileo; the optics of Al-hacen, the development of eyeglasses, of the telescope (Galileo, Kepler, Newton), and of lens grinding and polishing; dynamics and strength of materials (Galileo), and the emergence of classical mechanics (Newton) and optics (Kepler).

We will study the basic mechanics and optics as we currently understand these topics; the original texts (in English translation); and some of archaeological and historical discoveries. Our goal is to use current mechanics and optics to understand their millennia-long emergence.

Prerequisites: None.