

Physics 174

Lecture Outline for Exam I

16 February, 2007

Lectures as given

Lect.	Date	Topic	Material covered (see outline below)
1	22 Jan	Intro	0.1. - 0.3.
2	24 Jan	Intro	0.4. - 0.5.
3	26 Jan	I.01	1.1.
4	29 Jan	I.02	1.2. - 1.3.
5	31 Jan	I.03	1.4.
6	2 Feb	I.04	1.5.1.-1.5.3.
7	5 Feb	I.05	1.5.3.-1.5.6. 1.6.1.
8	7 Feb	I.06	1.6.2.-1.6.4.
9	9 Feb	I.07	1.6.5.-1.6.6. 1.7 1.8.1.
10	12 Feb	I.08	1.8.1.-1.8.3. 1.9.1.-1.9.3.
11	14 Feb	I.09	classes cancelled
12	16 Feb	I.10	1.9.4. 1.10.
13	19 Feb	I.11	1.11 (and 9 pm Review)
14	21 Feb	Exam 1	

Outline

0. Introduction

- 0.1. The course
- 0.2. The subject
- 0.3. The Grand Tour
- 0.4. Science
- 0.5. The Meaning of Measure

1. The Birth of Astronomy

1.1. Ancient astronomy

- 1. Civilization and towns
- 2. Needs for astronomy
- 3. Sun
- 4. Stars
- 5. Planets
- 6. Precession

1.2. Egypt

- 1. Historical sketch
- 2. Early Egyptian cosmology
- 3. Sirius and the Nile
- 4. Calendar

1.3. Mesopotamia

- 1. Historical background
- 2. Religion and cosmology
- 3. Babylonian astronomy
- 4. Astrology
- 5. Conclusions

Outline (continued)

- 1.4. Ancient Greece
 - 1. The Setting
 - 2. The Milesian School
 - 3. The Pythagoreans
 - 4. The Rationalists
 - 5. The Greek mind
- 1.5. The Celestial Sphere Model
 - 1. Physical solution
 - 2. Coordinates
 - 3. Motion of the Sun
 - 4. Motion of the Moon
 - 5. Motion of the other planets
 - 6. Time
- 1.6. Classical Greece
 - 1. Socrates and Plato
 - 2. Eudoxan spheres
 - 3. Aristotle
 - 4. The Alexandrian School
 - 5. Hipparchus
 - 6. Ptolemy
- 1.7. The Dark Ages
 - 1. The Fall of Rome
 - 2. Science in the Dark Ages
 - 3. Moslem astronomy
 - 4. The rise of Scholasticism
 - 5. The roots of the Renaissance
- 1.8. The Copernican Revolution
 - 1. Nicholas Copernicus
 - 2. The heliocentric model of Copernicus
 - 3. The reaction
- 1.9. Galileo
 - 1. Background
 - 2. Physics
 - 3. The telescope
 - 4. The trial of Galileo
- 1.10. Kepler
 - 1. Background
 - 2. Tycho Brahe
 - 3. Kepler's method
 - 4. Kepler's Laws
 - 5. Consequences
- 1.11. Newton
 - 1. Background
 - 2. Isaac Newton's life in review
 - 3. Newton's Three Laws of Motion
 - 4. The Law of Universal Gravitation