

**Astronomy 1102/1104**  
**Lecture Outline for Exam 2**

13 March, 2009

Unit 2 is on the front of this handout; Unit 3 is on the back.

**Unit 2**

**Lectures as given**

Lect.	Date	Topic	Material covered (see outline below)
14	18 Feb	II.01	2.1.-2.2
15	20 Feb	II.02	2.3.
16	23 Feb	II.03	2.4.
17	25 Feb	II.04	2.5.

**Outline**

2. Light

2.1. What is Light?

1. Waves vs. Particles
2. Electromagnetic Waves
3. The Electromagnetic Spectrum

2.2. What is Matter?

1. Particles and Energies
2. Interactions with Light
3. Kirchhoff's Laws and Spectra

2.3. Radiation Laws and Atoms

1. Blackbodies
2. Wien's Displacement Law
3. The Stefan-Boltzmann Law
4. Spectral Lines
5. Atoms and Molecules
6. Doppler Shifts

2.4. Photometry and Spectroscopy

1. Blackbody Review
2. Brightness and Distance
3. Albedo
4. Spectroscopy Review
5. Doppler Shifts
6. What Can We Learn?

2.5. Telescopes

1. What Telescopes Can Do
2. Space Telescopes
3. Radio Astronomy

Note: Exam 2 will also include questions on Newton's Laws of Motion and Universal Law of Gravity from the last lecture of Unit 1.

## Unit 3

### Lectures as given

Lect.	Date	Topic	Material covered (see outline below)
18	27 Feb	III.01	3.1.
19	2 Mar	III.01	3.2.1.-3.2.5.
20	4 Mar	III.02	3.2.6.-3.2.8. 3.3.
21	6 Mar	III.03	3.4.1.-3.4.4.
22	9 Mar	III.04	3.4.5. 3.5.
23	11 Mar	III.05	3.6.
24	13 Mar	III.06	3.7.
25	23 Mar	III.07	review
26	25 Mar	III.08	exam

### Outline

#### 3. The Inner Solar System

##### 3.1. Overview of the Solar System

1. A Perspective
2. Quick inventory
3. Key Properties
4. Some Definitions
5. The Terrestrial Worlds

##### 3.2. Terrestrial Surfaces

1. Crater Counting
2. Radioactive Dating
3. Back to the Moon
4. Plate Tectonics
5. Geology Basics
6. Mercury
7. Mars
8. Venus

##### 3.3. Terrestrial Interiors

1. Differences
2. Probing the Interiors
3. The Structure of Earth
4. Other Terrestrial Worlds

##### 3.4. Terrestrial Atmospheres

1. Surface Temperature
2. Retaining an Atmosphere
3. Venus
4. Earth
5. Mars

##### 3.5. Life on Earth

1. The Controversy
2. Formation of Life on Earth
3. Evolution Is a Fact
4. Evolution Is a Theory
5. Evolution Mythology

##### 3.6. Life and Water on Mars

1. The Old Mars
2. The New Mars

##### 3.7. Climatology

1. The Role of Science
2. Evidence for Climate Change
3. Long-Term Variations
4. Causes
5. Consequences
6. Politics and Media Awareness