

Astronomy 101
Units II-III Lecture Outline

19 October, 2016

Lecture	Date	Topic	Material (see outline below)
13	23 Sep	Waves and the Spectrum	2.1., 2.2.1
14	26 Sep	Telescopes	2.2.
15	28 Sep	Cameras and Images	2.3.
16	30 Sep	Spectra	2.4.
17	3 Oct	The Sun	2.5.
18	5 Oct	Overview of the Solar System	3.1.
19	7 Oct	Terrestrial Surfaces	3.2.1. – 3.2.5.
20	10 Oct	Terrestrial Interiors	3.2.6. – 3.2.8., 3.3.
21	12 Oct	Terrestrial Atmospheres	3.4.
22	14 Oct	Life on Earth	3.5.
23	17 Oct	Life and Water on Mars	3.6.
24	19 Oct	Climate and Change	3.7.
25	24 Oct	Review	
26	26 Oct	Mid-term Exam 2	

Outline for Mid-term Exam 2

Unit II. Light

2.1. Waves and the Spectrum

1. Electromagnetic radiation
2. Electromagnetic waves
3. The electromagnetic spectrum
4. The Correspondence Principle

2.2. Telescopes

1. Optics
2. Refracting telescopes
3. Reflecting telescopes
4. Looking through the atmosphere

2.3. Cameras and Images

1. Blackbody radiation
2. Brightness and distance
3. Albedo
4. Photometric methods
5. Infrared astronomy

2.4. Spectra

1. The Bohr model
2. Absorption and emission
3. Reality
4. Doppler shifts
5. Line profiles

2.5. The Sun

1. Properties
2. Hydrostatic equilibrium

3. Nuclear fusion
4. Structure
5. Fate

Unit III. 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. Mars in the early Space Age
3. Mars rovers
4. The fleet of explorers
5. What we have learned

3.7. Climate and Change

1. The role of science
2. Evidence for climate change
3. Long-term variations
4. Causes
5. Consequences
6. Public perception