

UNIVERSITY OF MARYLAND

Life in the Universe - Astrobiology ASTR 380
Spring 2018

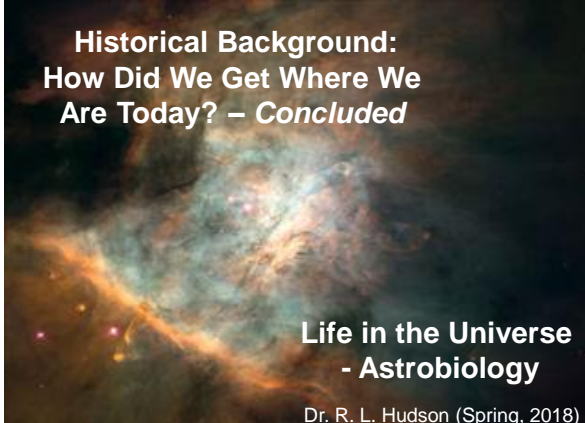
Home Course Description Instructor Textbook Your Work University Policies

Handouts, Answers, and More	Welcome!	Recent Changes
Class Meetings	Welcome to the syllabus and on-line material for ASTR 380, a 3-credit course designed primarily for non-science majors at the University of Maryland. Here you will find information about the course, the instructor, and the textbook. Study advice and aids also are included.	Announcements, advice, practice work, and so on will be posted here.
Study Advice		Disclaimer
Software and Maps	This semester the course is being taught in room ATL 2400 on Tuesday and Thursday afternoons at 2:00 - 3:15 PM by Dr. Reggie L. Hudson, a lecturer in the Department of Astronomy.	These pages are for educational purposes. Their content does not necessarily reflect endorsement by the University, by any state or federal Agency, or by any commercial entity.
Astro-news		
Astro-links		
Easy Money!		

Pages maintained by Dr. Reggie Hudson
Last changed: January 20, 2015

<http://www.astro.umd.edu/~rhudson/ASTR380/>


**Historical Background:
How Did We Get Where We
Are Today? – Concluded**




**Life in the Universe
- Astrobiology**

Dr. R. L. Hudson (Spring, 2018)


The School of Athens
Raphael (ca. 1510)



The School of Athens


Plato		Aristotle
Rationalism		Empiricism

Early Observations


Earth's shape and size 

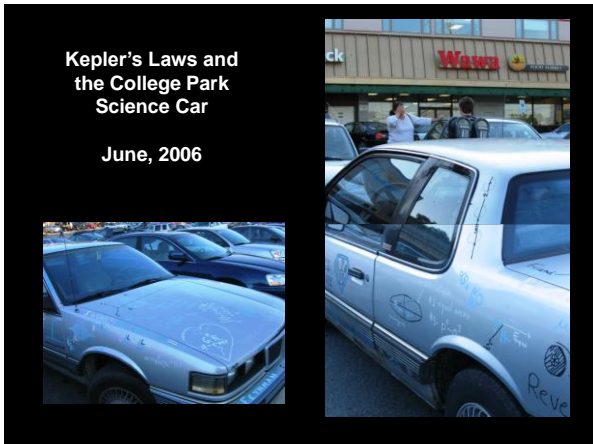
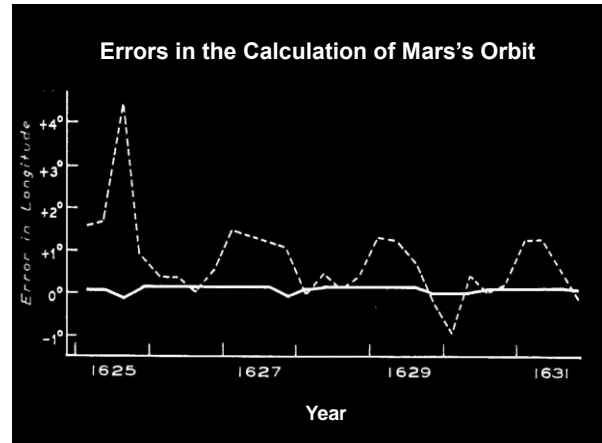
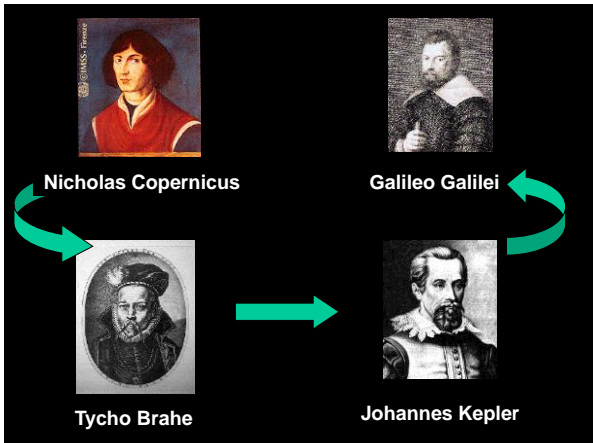
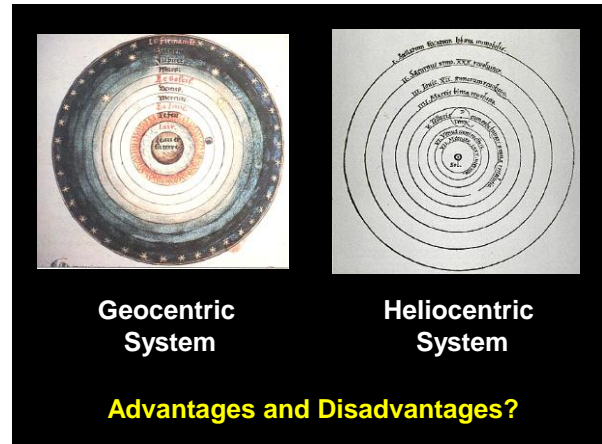
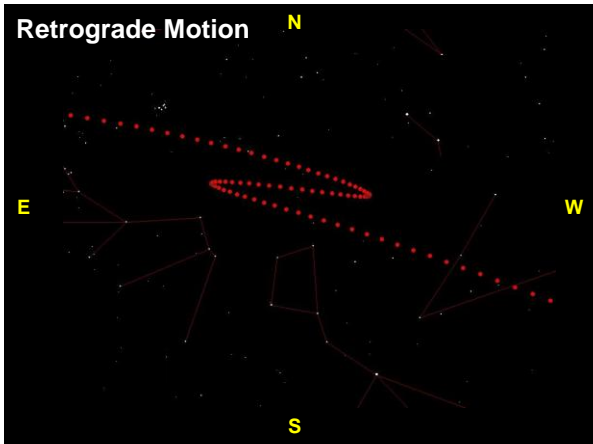
Cycles - daily, monthly, yearly (seasons)

Motions of the Sun and Moon, the stars and the planets



Circumpolar stars



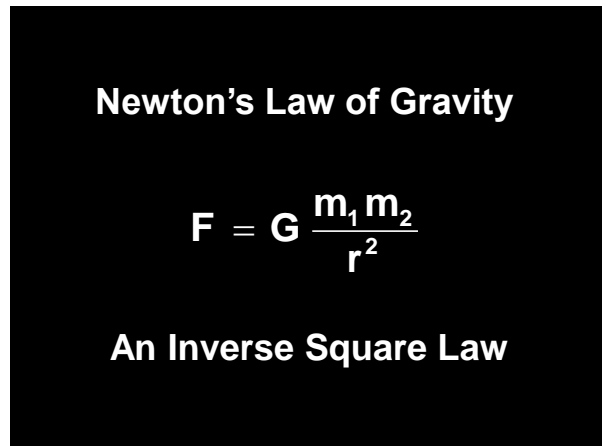
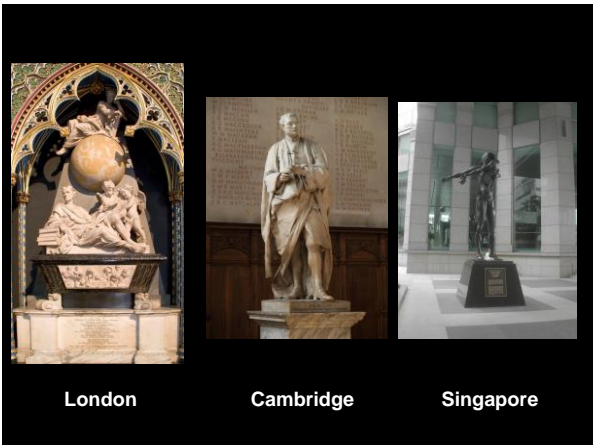
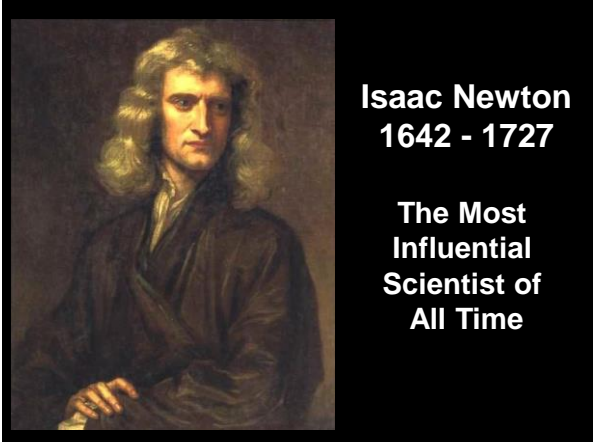


Kepler's Three Laws of Planetary Motion

Orbital shape **not** circular

Orbital speed **not** constant

$$\frac{a^3}{p^2} \text{ is a constant}$$

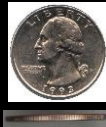
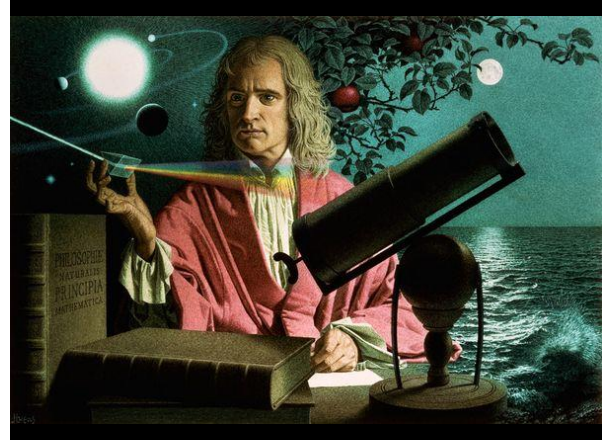




Isaac Newton
1642 - 1727

Newton's Law of Gravity

$$F = G \frac{m_1 m_2}{r^2} \quad \rightarrow \quad \frac{a^3}{P^2} = \frac{G}{4\pi^2} (m_1 + m_2)$$



The End



Sources of Material

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