Franklin & Marshall College - Physics and Astronomy Department
AST 312: Solar System Astrophysics
F. Crawford
Spring 2014 Course Schedule

Dates	Topics
Tue Jan 14	Overview; **Module 1** – Non-inertial Reference Frames
Thu Jan 16	**Module 1** – Tides
Tue Jan 21	**Module 1** – Tidal Locking; Io
Thu Jan 23	**Module 1** – Lagrange Points; Roche Limit; Trojans
Tue Jan 28	**Module 2** – Planetary Atmospheres; Opacity; Mean Free Path; Albedo
Thu Jan 30	**Module 2** – Greenhouse Effect
Tue Feb 4	**Module 2** – Scale Height; Atmospheric Escape
Thu Feb 6	**Module 2** – Fluid Statics and Dynamics; Coriolis Force
Tue Feb 11	**Module 3** – Planetary Composition; Hydrostatic Equilibrium; Ideal Gas; Polytropic Spheres; Planet Size
Thu Feb 13	**Module 3** – Gas Giant Interiors; Temperature and Cooling of Interiors; Virial Theorem
Tue Feb 18	**Module 3** – Phases of Matter; Terrestrial and Gas Planet Structure
Thu Feb 20	**Module 4** – Planetary Seismology; Harmonic Oscillator; Stress and Strain; Elastic Moduli
Tue Feb 25	**Module 4** – Elastic Waves in Solids; Refraction
Thu Feb 27	**Module 4** – P and S Seismic Waves; Navier Equation
Tue Mar 4	**Module 4** – P and S Seismic Waves; Planetary Interiors
Thu Mar 6	**Module 4** – Angular Momentum; Moment of Inertia; Oblateness; Two-Component Interior Model
Tue Mar 11	*Spring Break - no class*
Thu Mar 13	*Spring Break - no class*
Tue Mar 18	**Module 5** – Magnetic Fields; Magnetospheres; Dynamos
Thu Mar 20	**Module 5** – Magnetospheres; Magnetic Pressure
Tue Mar 25	**Module 5** – Auroras; Earth's Field; Van Allen Belts; Radiation Dosimetry
Thu Mar 27	**Module 5** – Jupiter and Io System; Io Flux Tube and Plasma Torus
Tue Apr 1	**Module 6** – Solar Wind; Parker Model
Thu Apr 3	**Module 6** – Alfvén Waves; Magnetized Plasmas
Tue Apr 8	**Module 6** – Comet Tails; Radiation Pressure
Thu Apr 10	Independent Project Presentations
Tue Apr 15	Independent Project Presentations
Thu Apr 17	Independent Project Presentations
Tue Apr 22	Independent Project Presentations
Thu Apr 24	Independent Project Presentations; Wrap Up

Assigned readings for each module and the due dates for assigned problems are provided in each assignment.

The final exam will be a take-home exam during the week of final exams.