UNIVERSITY OF CALGARY
DEPARTMENT OF PHYSICS AND ASTRONOMY
COURSE INFORMATION SHEET

1. Course: **ASPH 213, Introduction to Astrophysics**

Lecture/Time/Session(s): L01: MW: 1530-1645, ICT 114, Winter 2009
T01: W: 1700-1750, ST 139, Winter 2009

Instructor(s): L01:Dr. Wilson
Office: SB 531, Phone: 220-6088
Office Hours: Thursday 14:00 - 16:00
Email: wjfwilson@ucalgary.ca
Physics and Astronomy Office: SB 605, 220-5385

Main Office: SB 605, 220-5385

Course Website: http://www.phas.ucalgary.ca/asph213/

Blackboard site: ASPH 213 L01 - (Winter 2009) - Introduction To Astrophysics

2. Prerequisite: Physics 211 or 221 or 227

Note: The Faculty of Science policy on pre- and co-requisite checking is outlined on page 201, columns 2 and 3 of the 2008-2009 Calendar. A student may not register in a course unless a grade at least "C–" has been obtained in each prerequisite course; it is the responsibility of students to ensure that their registrations are in order.

3. The University policy on grading and related matters is described on pages 44-53 of the 2008-2009 Calendar. In determining the overall grade in the course, the following weights will be used.

Homework Assignments (5):	30%	(Assignments **MUST** be stapled (or paper clipped!) **DUE AT BEGINNING OF CLASS!!! NO LATE ASSIGNMENTS WILL BE ACCEPTED!!!!!!**
Lab Assignments (2)	20%	
In-class test (Feb 27)	15%	
Final Examination	35%	

There will be a Final Examination scheduled by the Registrar's Office.

4. Missed Components of Term Work. The regulations of the Faculty of Science pertaining to this matter are outlined on page 202, column 1 of the 2008-2009 Calendar. It is the student's responsibility to familiarize himself/herself with these regulations. See also the section headed “Term Work” on page 2 of these Physics 259 Course Information sheets.

5. **TEXTBOOK**: ***“Fundamental Astronomy, 5th ed.”***, Karttunen, Kroger, Oja, Poutanen, & Donner, publ. Springer-Verlag.

IMPORTANT/SAFEWALK: Campus Security will escort individuals day or night. Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under the heading Student Misconduct (pages 54-57 for 2008-2009).

FOIP: This course will be conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page.

STUDENT UNION INFORMATION: VP Academic **Phone**: 220-3911 **Email**: suvpaca@ucagary.ca
SU Faculty Rep. **Phone:** 220-3913 **Email:** sciencerep@su.ucalgary.ca

WJFW 9-1-09

Astrophysics 213 Course Schedule, Winter 2009

M Jan 12 - W Jan 21 Part 1 - Introduction (Ch. 1 & 2 and Sections 7.1 & 7.2)

Ch. 1	Introduction
2.1	Spherical Trigonometry
2.2	Coordinates on the Earth: Latitude and Longitude
2.3	The Celestial Sphere
2.4	The Horizontal Coordinate System
2.5	The Equatorial Coordinate System
2.7	The Ecliptic Coordinate System (no math)
7.1	Planetary Configurations
7.2	Orbit of the Earth and Visibility of the Sun
2.11	Constellations
2.13	Sidereal and Solar Time
2.15	Calendars (no math)
2.10	Positional Astronomy (parallax, proper motion)
2.9	Perturbations of Coordinates (precession, nutation, etc.)

M Jan 26 - M Feb 02 Part 2 - E & M (2.10 & Ch. 4)

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2.10	Positional Astronomy (the Doppler effect)
4.1	Flux and Luminosity
4.2	Apparent Magnitudes
4.4	Absolute Magnitudes
4.3	Magnitude Systems
4.5	Extinction and Optical Thickness

W Feb 04 - M Feb 09 Part 3 - Telescopes (Ch. 3)

3.1	Observing Through the Atmosphere
3.2	Optical Telescopes
3.3	Detectors and Instruments
3.4	Radio Telescopes
3.5	Other Wavelength Regions
3.6`	Other Forms of Energy

W Feb 11 - M Mar 02 Part 4 - Radiation (Ch. 5 & 15)

5.1 Radiation of Atoms and Molecules
5.2 The Hydrogen Atom
5.3 Line Profiles: natural line width; Doppler broadening
5.4 Quantum Numbers, Selection Rules, Population Numbers
5.5 Molecular Spectra
5.6 Continuous Spectra
5.7 Blackbody Radiation
5.8 Temperatures
5.9 Other Radiation Mechanisms

Monday, February 16 is Alberta Family Day - University closed (but libraries open). February 15-22 is Reading Week. No lectures. University open except Monday.

5.10 Radiative Transfer
15.1 Interstellar Dust
15.2 Interstellar Gas
15.3 Interstellar Molecules
15.4 Formation of Protostars
15.5 Planetary Nebulae
15.6 Supernova Remnants
15.7 The Hot Corona of the Milky Way
15.8 Cosmic Rays and the Interstellar Magnetic Field

W Mar 04 Midterm Test: Chapters 2, 3, 4, 5, 7

M Mar 09 - W Mar 25 Part 5 - Sun & Stars (Ch. 8, 10, 12)

8.1 Measuring Spectra
8.2 The Harvard Spectral Classification
8.3 The Yerkes Spectral Classification
8.4 Peculiar Spectra
8.5 The Hertzsprung-Russell Diagram
8.7 What Do the Observations Tell Us?
10.1 Stellar Models: Internal Equilibrium Conditions
10.2 Physical State of the Gas
10.3 Stellar Energy Sources
10.4 Stellar Models (discussion only, no math)
12.1 The Sun: Internal Structure
12.2 The Atmosphere of the Sun
12.3 Solar Activity

M Mar 30 - M Apr 06 Part 6 - Celestial Mechanics (Ch. 6 or a 1st year Physics text)

W Apr 08 - W Apr 15 Part 7 - Stellar Evolution (Ch. 11)

11.1 Evolutionary Time Scales
11.2 Contraction of Stars Toward the Main Sequence
11.3 The Main Sequence Phase
11.4 The Giant Phase
11.5 The Final Stages of Evolution
11.6 The Evolution of Close Binary Stars
11.7 Comparison with Observations
11.8 The Origin of the Elements

The last day of lectures for Winter, 2009, is Friday, April 17.