SYLLABUS
ASTRONOMY 101: INTRODUCTION TO ASTRONOMY

Fall 2010
Instructor: Lyford Rome
Phone: 555-5555
Email: rome@rohan.sdsu.edu
Meeting times: Online in WIMBA classroom, Tuesdays 6-8 pm P.S.T. Lab and observations will be the responsibilities of each student, one hour per week.

Course Description: This is an introductory astronomy course designed for non-science majors. It is designed to give the student a basic understanding of current astronomy from a historical perspective. Students will follow the development of current theories starting with their own investigations of the the motions of the stars and planets. Theories of physics as they relate to our understanding of the cosmos will be explored. This will provide the framework for understanding the other main topics in this course: the formation and characteristics of our solar system; stars and stellar evolution; galaxies, cosmology, the evolution of the universe and life on other world.

Course Goals: The main goals of the course are for students to gain an appreciation and understanding of the methodology and content of the science of astronomy. This knowledge includes the current theories of the universe as well as the scientific methods used to come to this knowledge. Students will be expected to describe not just what we know, but how we know what we know.

Assessment and grading: Assignments will count for 20 points, attendance and participation in the online sessions and forums will be worth 10 points, the midterm exam worth 20 percent, a final project worth 10 point and a comprehensive final worth 30 points.

Materials and resources:

Textbook: Horizons: Exploring the Universe, by Michael Seeds, 10th edition (11th is ok)
http://www.amazon.com/Horizons-Exploring-Universe-Michael-Seeds/dp/0495559733

Computer with microphone and headset, high speed online access to WIMBA

3D glasses – red blue – available online at Amazon or http://www.rainbowsymphony.com/

Optional – Binoculars or small telescope

Course Outline (Subject to change – lab and night observations not included)

Module 1: The Universe, Cosmic Zoom, Space and Time, Scale
Chapter 1: The Scale of the Cosmos

Module 2: Patterns in space, Constellations; Planet Motions
Chapter 2: The Sky

Module 3: Patterns in time, Day and Night; Rotation of the Earth, The Seasons; Phases of the Moon; Eclipses
Chapter 3: Cycles of the Sky

Module 4:	Earth-centered and Sun-centered Models of the Solar System; Galileo's observations; Kepler's Laws Chapter 4: The Origin of Modern Astronomy
Module 5:	The Methods and Tools of Scientific Exploration Chapter 5: Astronomical Telescopes
Module 6:	Newton's Laws of motion; Gravitation, Light Chapter 6: Starlight and Atoms
Module 7:	Electromagnetic Spectrum, Blackbody Radiation; Atoms Chapter 6: Starlight and Atoms
Module 8:	The Sun; How the Sun Generates Light, Sunspots, Flares, Solar Wind Chapter 7: The Sun
Module 9:	The Main Sequence; Star Death Chapter 8: The Family of Stars
Module 10:	Characteristics of Stars; Star Birth; The Lengths of Star Lives Chapter 9: The Formation and Structure of Stars, Chapter 10: The Deaths of Stars
Module 11:	Black Holes and other oddities, The Milky Way Chapter 11: Neutron Stars and Black Holes, Chapter 12: The Milky Way Galaxy
Module 12:	Formation of the Solar System Chapter 16: The Origin of the Solar System, Chapter 19: Meteorites, Asteroids, and Comets
Module 13:	The Earth and the Terrestrial Planets; Jupiter and the Jovian Planets Chapter 17: Comparative Planetology of the Terrestrial Planets, Chapter 18: Comparative Planetology of the Outer Planets,
Module 14:	Galaxies; The Big Bang; The History of the Universe Chapter 13: Galaxies, Chapter 14: Galaxies with Active Nuclei
Module 15:	The End of the Universe, Entropy, Are We Alone in the Universe? Chapter 15: Cosmology in the 21st Century, Chapter 20: Life on Other Worlds