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Intro To Astronomy

AY 101 Section 050

Summer 2014, Lecture

Dr. William Keel

Prerequisites

UA Course Catalog Prerequisites

No prerequisites or none listed.

Course Description

UA Course Catalog Information

History of astronomy, the solar system, stars, galaxies, and the universe; recent discoveries about pulsars, black holes, and quasars will be discussed. NOTE: If the student plans to apply AY 101 toward satisfaction of the N requirement of the University Core Curriculum, AY 102 must also be taken.

Core Designations:

Natural Science

Student Learning Outcomes

This course deals with the objects and techniques of astronomical investigation. We will consider planets, stars, and galaxies, with regard to their physical nature, history, and interrelations. Its specific learning goals are that students will:

1. be able to identify key concepts in the sciences to provide a broad perspective on the human condition.

2. be able to recognize and explain the scientific method, and evaluate scientific information.
3. be able to characterize the appearance and motion of celestial objects.
4. be able to identify the key conceptual advances (and associated figures) in the history of astronomy.
5. understand the relationship between light, matter, and energy in an astronomical context.
6. understand the content, formation and evolution of planetary systems.
7. understand the nature and evolution of stars.
8. understand the nature and evolution of galaxies.
9. understand the nature and evolution of the Universe.

Required Texts

UA Supply Store Textbook Information

KEEL / AY 101 CLASS NOTES (SUMMER 2014) **(Optional)**

BENNETT / COSMIC PERSPECTIVE FUNDAMENTALS W/MASTERING ASTRONOMY **(Choose One)**

BENNETT / COSMIC PERSPECTIVE WITH MASTERING ASTRONOMY & SKYGAZER **(Choose One)**

Lecture outlines from Supe Store are optional; PDF may be obtained from course web site

<http://astronomy.ua.edu/keel/ay101>.

Outline of Topics

Class outline

May 27	Introduction, process of science, cosmic scales (1)
May 28	Viewing the sky - seasons, phases, eclipses (2)
May 29	How we learned to read the sky (3)
May 30	Newton to Einstein - gravity as physics in the sky (3)
June 2	Our solar system and its history (4)
June 3	Earth and other rocky worlds (5); evening observing session possible
June 4	Exploration of the solar system

June 5	Giant planets (6)
June 6	Light and telescopes (3,5 - "Tools of Science")
June 9	Planets around other stars (7) First extra-credit paper due
June 10	The Sun (8)
June 11	Other stars (8)
June 12	Lives of the stars (9); evening remote-observing possible
June 13	Stellar graveyards (10)
June 16	The Milky Way (11)
June 17	Galaxies(11)
June 18	Galaxies: distances and history (12); evening remote-observing possible
June 19	Quasars and their kin(11)
June 20	The early Universe (13) Second extra-credit paper due
June 23	Dark energy and dark matter - where's the rest of the Universe? (14)
June 24	Life in the Universe (15)

Exams and Assignments

There will be 8-10 quizzes during class. The final exam is comprehensive, scheduled at 8 a.m. on Thursday, June 26. There is online homework using the Mastering Astronomy system (key either purchased with textbook or [from the publisher](#)).

Grading Policy

The course grade will be based on in-class quizzes (50%), online homework through the Mastering Astronomy system (25%), and a comprehensive final exam (25%). Extra credit may be given in conjunction

with observing activities during the course, and there will be the opportunity for extra-credit essays. Any questions on quiz or assignment grading must be brought up before the final exam.

Policy on Missed Exams & Coursework

The lowest quiz grade will be dropped automatically. Other makeup work will be allowed only for illness or required absence; inform me as early as possible.

Extra Credit Opportunities

Extra credit may be given in conjunction with observing activities during the course, and there will be the opportunity for two extra-credit essays.

Emergency Contact Information

UA's primary communication tool for sending out information is through its web site at www.ua.edu. In the event of an emergency, students should consult this site for further directions. Additional course information will be posted using Blackboard Learn.

Severe Weather Guidelines

The guiding principle at The University of Alabama is to promote the personal safety of our students, faculty and staff during severe weather events. It is impossible to develop policies which anticipate every weather-related emergency. These guidelines are intended to provide additional assistance for responding to severe weather on campus.

UA is a residential campus with many students living on or near campus. In general classes will remain in session until the National Weather Service issues safety warnings for the city of Tuscaloosa. Clearly, some students and faculty commute from adjacent counties. These counties may experience weather related problems not encountered in Tuscaloosa. Individuals should follow the advice of the National Weather Service for that area taking the necessary precautions to ensure personal safety. Whenever the National Weather Service and the Emergency Management Agency issue a warning, people in the path of the storm (tornado or severe thunderstorm) should take immediate life saving actions.

When West Alabama is under a severe weather advisory, conditions can change rapidly. It is imperative to get to where you can receive information from the [National Weather Service](http://www.nws.gov) and to follow the instructions provided. Personal safety should dictate the actions that faculty, staff and students take.

The Office of University Relations will disseminate the latest information regarding conditions on campus in the following ways:

- Weather advisory posted on the UA homepage
- Weather advisory sent out through UA Alerts to faculty, staff and students
- Weather advisory broadcast over WVUA at 90.7 FM
- Weather advisory broadcast over Alabama Public Radio (WUAL) at 91.5 FM
- Weather advisory broadcast over WVUA-TV/WUOA-TV, and on the website at <http://wvuatv.com/content/weather>. WVUA-TV Home Team Weather provides a free service you can subscribe to which allows you to receive weather warnings for Tuscaloosa via e-mail or cell phone. Check <http://wvuatv.com/content/free-email-weather-alerts> for more details and to sign up for weather alerts.

In the case of a tornado warning (tornado has been sighted or detected by radar; sirens activated), all university activities are automatically suspended, including all classes and laboratories. If you are in a building, please move immediately to the lowest level and toward the center of the building away from windows (interior classrooms, offices, or corridors) and remain there until the tornado warning has expired. Classes in session when the tornado warning is issued can resume immediately after the warning has expired at the discretion of the instructor. Classes that have not yet begun will resume 30 minutes after the tornado warning has expired provided at least half of the class period remains.

Disability Statement

If you are registered with the Office of Disability Services, please make an appointment with me as soon as possible to discuss any course accommodations that may be necessary.

If you have a disability, but have not contacted the Office of Disability Services, please call (205) 348-4285 (Voice) or (205) 348-3081 (TTY) or visit 133-B Martha Parham Hall East to register for services. Students who may need course adaptations because of a disability are welcome to make an appointment to see me during office hours. Students with disabilities must be registered with the Office of Disability Services, 133-B Martha Parham Hall East, before receiving academic adjustments.

Policy on Academic Misconduct

All students in attendance at The University of Alabama are expected to be honorable and to observe standards of conduct appropriate to a community of scholars. The University of Alabama expects from its students a higher standard of conduct than the minimum required to avoid discipline. At the beginning of each semester and on examinations and projects, the professor, department, or division may require that each student sign the following Academic Honor Pledge: "I promise or affirm that I will not at any time be involved with cheating, plagiarism, fabrication, or misrepresentation while enrolled as a student at The University of Alabama. I have read the Academic Honor Code, which explains disciplinary procedure resulting from the aforementioned. I understand that violation of this code will result in penalties as severe as indefinite suspension from the University."

See the [Code of Student Conduct](#) for more information.