

**DEREE COLLEGE SYLLABUS FOR:
AS 1000 LE INTRODUCTION TO ASTRONOMY**

3/0/3

(Fall 2016)

PREREQUISITES:

None

CATALOG DESCRIPTION:

This introductory course in astronomy unveils the wonders of the Cosmos such as solar systems and planets, origin and evolution of stars and galaxies, and various cosmological theories. It gives emphasis on modern developments of astronomy and its connections to everyday life.

RATIONALE:

The course provides a general introduction for students with an interest in the science of astronomy. It introduces them to the beautiful world of our Universe, connecting topics with their everyday lives, answering major scientific as well as philosophical questions, presenting the true knowledge on the Cosmos in contrast to pseudo-science fiction and emphasizing the value of scientific literacy and the benefits of scientific progress. The topics are treated briefly in a general qualitative style, so that the diverse nature of the subject can be appreciated.

LEARNING OUTCOMES:

- As a result of taking this course, students should be able to:
1. Relate the philosophy of different civilisations in their Cosmos approach.
 2. Demonstrate an understanding of the history of astronomy, the human impact in space, space pollution and space sustainability.
 3. Explain how the laws of nature apply in the universe.
 4. Demonstrate an understanding of basic concepts of the evolution of the universe and galaxy formation.
 5. Discuss star systems and the search for life in space.
 6. Apply fundamental mathematical methods related to the understanding of course content.

METHOD OF TEACHING AND LEARNING:

- In congruence with the learning and teaching strategy of the college, the following tools are used:
- Class lectures, interactive learning (class discussions, group work) video presentations, and practical problems solved in class.
 - Exercises and primary source documents are assigned as homework, the solutions of which are reviewed in class
 - CD-ROMS – Films and/or Field Trips (Science Exhibitions, the Planetarium).
 - Office hours: students are encouraged to make full use of the office hours of their instructor, where they can ask questions, see their exam paper, and/or go over lecture/lab material.
 - Use of a blackboard site, where instructors are free to post course documents, timely announcements, as well as additional resources.

ASSESSMENT:

Summative:

In-class midterm examination (1-hour) (Multiple choice/short answers/matching /essay questions /problem solving)	40%
Final examination (2-hours, comprehensive) (Multiple choice/short answers/ matching /essay questions /problem solving)	60%

Formative:

Essay questions (as homework assignments)	0%
In-class or online quizzes	0%

	<p>The formative tests aim to prepare students for the examinations. The midterm examination tests Learning Outcomes 1 to 3. The final examination tests all Learning Outcomes.</p> <p>The final grade for this module will be determined by averaging all summative assessment grades, based on the predetermined weights for each assessment. Students are not required to resit failed assessments in this module. Failure to pass the module results in module repeat.</p>
INDICATIVE READING:	<p>Required Reading: Thomas T. Arny and Stephen E. Schneider. 2014. <i>Explorations: An Introduction to Astronomy</i>. 7th Edition, McGraw Hill.</p>
INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)	<p>REQUIRED MATERIAL: N/A</p> <p>RECOMMENDED MATERIAL: N/A</p>
COMMUNICATION REQUIREMENTS:	Verbal skills using academic/professional English
SOFTWARE REQUIREMENTS:	Microsoft Word, Excel for Windows.
WWW RESOURCES:	<p>http://physicsworld.com/ http://scienceworld.wolfram.com/astronomy/ http://arxiv.org/ http://phet.colorado.edu/en/simulations/category/physics http://astro.unl.edu/animationsLinks.html http://astronomy.beamappzone.com/ http://www.skyandtelescope.com/ http://www.astronomy.com/ http://astronomynow.com/ http://www.nasa.gov/ http://www.cleardarksky.com/csk/</p>
INDICATIVE CONTENT:	<ol style="list-style-type: none"> 1. The Cycles of the Sky 2. The Rise of Astronomy 3. Gravity and Motion 4. Light and Atoms 5. Telescopes 6. The Earth 7. The Moon 8. Survey of Solar Systems 9. The Terrestrial Planets 10. The Outer Planets 11. Small Bodies Orbiting the Sun 12. The Sun, Our Star 13. Measuring the Properties of Stars 14. Stellar Evolution 15. Stellar Remnants: White Dwarfs, Neutron Stars, and Black Holes 16. The Milky Way Galaxy 17. Galaxies 18. Cosmology

