UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Fisica e Chimica - Emilio Segrè
ACADEMIC YEAR	2016/2017
BACHELOR'S DEGREE (BSC)	PHYSICS
SUBJECT	ASTRONOMY
TYPE OF EDUCATIONAL ACTIVITY	B
AMBIT	50163-Astrofisico, geofisico e spaziale
CODE	01501
SCIENTIFIC SECTOR(S)	FIS/05
HEAD PROFESSOR(S)	PERES GIOVANNI Cultore della Materia Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	94
COURSE ACTIVITY (Hrs)	56
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**PERES GIOVANNI** Monday 15:30 17:30 Specola Universitaria (Dip. Fisica e Chimica) - Piazza Parlamento 1 - Studio del Prof. Peres (Stanza nr. 15) Tuesday 15:30 17:30 Specola Universitaria (Dip. Fisica e Chimica) - Piazza Parlamento 1 - Studio del Prof. Peres (Stanza nr. 15)

DOCENTE: Prof. GIOVANNI PERES

PREREQUISITES	Fundamental physics. Basic calculus
LEARNING OUTCOMES	Knowledge and understanding Students learn basic Astronomy and Astrophysics, of their physical methods and the related tools for observations and interpretation. Applying knowledge and understanding With exercises, discussions and derivations during lessons (as well during the exams) students apply what they have learnt to simple, but important, cases well selected within basic Astronomy and the related physical phenomena. Making judgements Students are asked to make evaluations and quantitative derivations based on physics, to tackle questions with an independent approach and to evaluate the applicable astronomical or physical method pertinent to the problem. Students may also be asked to tackle an entirely new problem with an inquisitive approach. Communication skills Students during exercises and discussions during the lessons and the oral exam are aked to comment some aspects of Astronomy stemming from the discussion and to expose them in their own words. Learning skills Students will use teacher's notes, textbooks in English, some material available in the web to be used for study.Students are also encouraged to look for other textbooks and informations on the web (to be handled with caution and an inquisitive and critical mind).
ASSESSMENT METHODS	Final exam will be an oral one. Oral exam is a discussion on astronomical phenomena, on the related physical laws, on the derivation of physical conditions found in various astronomical objects; the student may be asked to solve simple computations or solution of related physical problems. The exam aims to verify the student's knowledge of Astronomy, her/his ability to apply it, the proper use of astronomical terminology and verbiage and her/his ability to expose the subject clearly and plainly. Final grade, properly scaled, will be provided according to the following conditions: a) Basic knowledge of astronomical phenomenology, of related physical laws and limited ability to apply them autonomously to new cases, sufficient ability to analyze the phenomena proposed and to expose the conceptual path followed to reach the result (grade 18-21); b) Good knowledge of astronomical phenomenology, of related physical laws; good capability to apply them autonomously to new cases, to analyze the phenomena proposed and to expose the conceptual path followed to reach the result (grade 22-25); c) Deep knowledge of astronomical phenomenology, of related physical laws; good capability to apply them autonomously and promptly to new cases (albeit with some occasional uncertainty and/or with a twisted path); rather good ability to analyze the phenomena proposed and to expose the conceptual path followed to reach the result (voto 26-28); d) Deep and broad knowledge of astronomical phenomenology, of related physical laws; very good capability to apply them autonomously and promptly to new cases; very good ability to analyze the phenomena proposed and to expose the conceptual path followed to reach the result; topmost grade may be given also (nut not only) under the evidence of autonomous contributions or studies (grade 29-30L).
EDUCATIONAL OBJECTIVES	Learning basic Astronomy.
TEACHING METHODS	The subject is presented in the second semester of the second year of the CdL in Physical Sciences. Didactics is based on lessons which often include quantitative estimates and calculations. Students are strongly encouraged to join and, sometimes, are involved directly in the numerical estimates o in the discussions.
SUGGESTED BIBLIOGRAPHY	Kartunen, Kroger, Oja, Poutanen, Donner – Fundamental Astronomy – Springer Verlag Testi di Consultazione (Additional texts) Attilio Ferrari - Stelle, galassie e universo. Fondamenti di astrofisica. - Springer Verlag Zeilik - Gregory - Introductory Astronomy and Astrophysics - Saunders Golden Sunburst Series F.H. Shu – Physical Universe: An Introduction to Astronomy – University Science Books M. Kutner – Astronomy: A physical perspective - Cambridge University Press

	B.W. Carroll, D.A. Ortlie: An Introduction to Modern Astrophysics – Addison Wesley Note del docente

SYLLABUS

Hrs	Frontal teaching
1	Celestial sphere, coordinate systems, positional astronomy
1	Telescopes and other instruments for astronomical observations in various spectral bands
1	Definition of intensity, flux and other features of radiation.
2	Emission and absorption of radiation and its propagation in a mean.
4	Solar system, planets and minor bodies. Extrasolar planets.
2	Stellar spectra and stellar classification
4	Structure and evolution of stars
3	Binary stars
2	Interstellar medium
2	Structure of the Galaxy, spiral arms.
2	Stellar populations
3	Classification and features of galaxies
1	Cluster of galaxies
2	Active galaxies
2	Cosmology

Hrs	Practice
2	Exercises on photometry and spectroscopy
4	Mechanisms of emission and absorption
4	Exercises on the solar system and on methods for extrasolar planets detection.
4	Stellar spectra, stellar classification,HR diagram, luminosity classes.
4	Nuclear reaction and other physical processes inside stars.
2	Exercises on binary stars.
1	Star populations.
2	Extragalactic astronomy
1	Exercises on cosmology