640-237 Astrophysics & Optics II

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 1, - Taught on campus.
Time Commitment:	Contact Hours: 36 lectures and 12 1-hour tutorials Total Time Commitment: 120 hours.
Prerequisites:	Physics 640-121 and 640-122 (or 640-141 and 640-142); mathematics: one of 620-121, 620-140, 620-141 or equivalent.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	A/Prof R Scholten; Dr S Wyithe
Subject Overview:	This subject provides an introduction to two major areas of modern physics. In astrophysics, the basic structure of stars, our galaxy and the universe will be discussed, and the most recent research questions will be introduced. In optics, the nature and propagation of light will be explored and illustrated with reference to applications in modern instruments, and the principles behind lasers will be introduced. Students completing this subject will be able to: # explain and describe the structure and evolution of stars, the structure of the Milky Way and other cosmic objects and discuss cosmological models; # explain the geometric and wave theories of optics and their application to instrumentation; # explain the operational principles of lasers and the unique properties of laser light; # solve and analyse problems relevant to the above topics. In addition students will enhance their ability to plan effective work schedules and manage their time to meet the deadlines for submission of assessable work and prepare for tests and examinations.
Assessment:	Tests totalling up to 2 hours and assignments totalling up to an equivalent of 3000 words during the semester (20%); a 3-hour written examination in the examination period (80%).
Prescribed Texts:	Optics (E Hecht), 4th edn, Addison-Wesley An Introduction to Modern Astrophysics (B Carol and D Ostlie), Addison-Wesley
Breadth Options:	This subject is a level 2 or level 3 subject and is not available to new generation degree students as a breadth option in 2008. This subject or an equivalent will be available as breadth in the future. Breadth subjects are currently being developed and these existing subject details can be used as guide to the type of options that might be available. 2009 subjects to be offered as breadth will be finalised before re-enrolment for 2009 starts in early October.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees

Notes:	This subject is available for science credit to students enrolled in the BSc (pre-2008 degree only), BASc or a combined BSc course.