



The University of Southern Queensland

## Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.  
Please consult the web for updates that may occur during the year.

### Description: Astronomy 2

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
PHY	1107	78830	2, 2008	EXT	1.00	Toowoomba

<b>Academic group:</b>	FOSCI
<b>Academic org:</b>	FOS002
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	010303

### STAFFING

Examiner: Brad Carter  
Moderator: Alfio Parisi

### RATIONALE

PHY1107 Astronomy 2 provides an introduction to the Sun, the stars, and the galaxies. It is an appropriate elective for students of physics & astronomy, biology, chemistry, climatology, education and other disciplines. The course provides broad scientific understanding of our origins, our place in the universe, and our future, and highlights the profound astronomical influences on our planet. The course starts with the Sun and its terrestrial influences, and how stars help us trace the Sun's past, present and future. It then reviews what is known about our home galaxy, the Milky Way, and the other galaxies that form the basic building blocks of the visible universe. It also delves into cosmology, the study of the universe as a whole. The course concludes with a look at life on Earth, and the search for extraterrestrial life and intelligence. Access to Mt Kent Observatory is provided, so that students can develop skills in observing "deep sky" objects beyond the solar system. PHY1107 is the complementary course to PHY1101 Astronomy 1, an introduction to planetary science.

### SYNOPSIS

The astronomy course is about the Sun, the stars and galaxies, and includes cosmology, the study of the universe as a whole, and astrobiology, the study of life in the universe. The course begins with the Sun, our local typical star, and moves onto a survey of the stars of the night sky. The course then discusses how stars form, evolve, die and end up as stellar remnants. Our Milky Way galaxy is then introduced, as a prelude to a survey of other galaxies. Following this, the universe on the grandest scale is examined, from its origins in the Big Bang, to its future as an expanding, accelerating cosmos. Finally, we take a look at life on Earth, and how life and intelligence could arise elsewhere. Access to Mt Kent Observatory is provided as part of this course, so that students can observe "deep sky" objects beyond our solar system. This course follows on from PHY1101 Astronomy 1 (which focuses on planetary science), but may be taken independently.

## OBJECTIVES

On completion of this course students will be able to :

1. describe our Sun's structure, energy source and activity (CMA1, Exam);
2. compare the Sun with other stars (CMA1, Exam);
3. summarise the process of star formation (CMA1, Exam);
4. discuss how stellar mass determines how a star evolves (CMA1, Exam);
5. describe the stellar remnants known as white dwarfs, neutron stars and black holes (CMA1, Exam);
6. describe the structure of the Milky Way galaxy and our location within it (CMA2, Exam);
7. compare our Milky Way galaxy with other galaxies (CMA2, Exam);
8. discuss how galaxies form, interact and evolve over time (CMA2, Exam);
9. describe the key cosmological concepts of the Big Bang, dark matter, and dark energy (CMA2, Exam);
10. explain how scientists are searching for life beyond the Earth (CMA2, Exam);
11. plan a deep-sky observing night (Assignment).

## TOPICS

	Description	Weighting (%)
1.	The Sun	10.00
2.	The Stars	10.00
3.	Star Formation	10.00
4.	Stellar Evolution	10.00
5.	Stellar Remnants	10.00
6.	The Milky Way	10.00
7.	Galaxies	10.00
8.	Galaxy Evolution	10.00
9.	Cosmology	10.00
10.	Astrobiology	10.00

## TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

Students will require access to e-mail and internet access to USQConnect for this course

Bennett, J, Donahue, M, Schneider, N & Voit, M 2006, *The Cosmic Perspective (with Mastering Astronomy and Skygazer Planetarium Software)*, 4th edn, Pearson Education/Addison Wesley-Benjamin Cummings, USA.

(This book is the set text for both PHY1101 Astronomy 1 and PHY1107 Astronomy 2. Students will require e-mail and web access including USQConnect for this course. <http://www.aw-bc.com> <http://www.MasteringAstronomy.com>)

## REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Relevant materials listed on the PHY1107 course website at: [www.usq.edu.au/users/carterb/phy1107](http://www.usq.edu.au/users/carterb/phy1107)

Freedman, RA & Kaufmann, WJ 2005, *Universe*, 7th edn, WH Freeman & Co, USA.

(<http://bcs.whfreeman.com/universe7e>)

Seeds, MA 2006, *Horizons*, 9th edn, Thomson Brooks/Cole, USA.

([www.brookscole.com/astronomy\\_d](http://www.brookscole.com/astronomy_d))

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assignments	24.00
Computer Managed Assessment	24.00
Examinations	2.00
Field Trips or Excursions	4.00
Private Study	116.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
CMA 1	10.00	10.00	12 Sep 2008
ASSIGNMENT	20.00	20.00	29 Sep 2008
CMA 2	10.00	10.00	31 Oct 2008
2HR RESTRICTED EXAM	60.00	60.00	END S2 (see note 1)

### NOTES

1. Examination dates will be available during the Semester. Please refer to the examination timetable when published.

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:

There are no attendance requirements for this course. However, it is the students' responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

- 2 Requirements for students to complete each assessment item satisfactorily:  
To satisfactorily complete an assessment item a student must achieve at least 50% of the marks or a grade of at least C-. Refer to Statement 4 below for the requirements to receive a passing grade in this course.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without (prior) approval of the examiner then a penalty of 5% of the total marks gained by the student for the assignment may apply for each working day late up to ten working days at which time a mark of zero may be recorded. No assignments will be accepted after model answers have been posted.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.
- 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.
- 6 Examination information:  
Candidates are allowed access only to specific materials during a Restricted Examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); calculators which cannot hold textual information (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination).
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held during the examination period at the end of the semester of the next offering of this course.
- 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

## **ASSESSMENT NOTES**

- 9 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.
- 10 In accordance with University Policy, the Examiner may grant an extension of the due date of an assignment in extenuating circumstances.
- 11 The Faculty will NOT accept submission of assignments by facsimile.
- 12 Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements.
- 13 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.
- 14 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply

to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

15 Students may be required to provide a copy of assignments submitted for assessment purposes. Such copies should be dispatched to the USQ within 24 hours of receipt of a request to do so.

## **OTHER REQUIREMENTS**

1 Students will require access to e-mail and internet access to USQConnect for this course.

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