PHYS 3001 ASTROINFORMATICS

Credit Points 10

Legacy Code 300916

Coordinator Nicholas Tothill (https://directory.westernsydney.edu.au/search/name/Nicholas Tothill/)

Description Modern astronomy is strongly driven by large datasets, which require advanced computing procedures to analyse. Students will learn about the science of stars, planets and galaxies; the use of computers in science; and how to formulate and solve challenging problems in modern science using high-level computer skills. These skills are highly transferable to other occupations.

School Science

Discipline Astronomy

Student Contribution Band HECS Band 2 10cp

Check your fees via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Restrictions

Successful completion of 120 credit points

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Relate modern theories of solar system history to extrasolar planetary systems
2. Analyse stellar datasets to detect and characterise exoplanets
3. Analyse stellar datasets to find evidence of stellar evolution
4. Analyse optical- and radio-astronomical data to create and interpret maps of the Milky Way Galaxy
5. Classify external galaxies and explain the significance of their classification
6. Analyse the structure of the cosmic microwave background and explain its significance

Subject Content

1. Planetary astronomy
2. Stellar Astronomy
3. Exoplanetary Astronomy
4. Galactic Astronomy
5. Extragalactic Astronomy
6. Cosmology
7. Tools and Techniques - Imaging and Mapping
8. Tools and Techniques - Spectroscopy and Datacubes
9. Tools and Techniques - Data acquisition and Data structures
10. Tools and Techniques - Data reduction and fitting

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task
Report	Approx. 400 words each	50	N	Individual
Final Exam	2 hours	50	N	Individual

Teaching Periods

Spring (2023)

Parramatta - Victoria Rd

On-site

Subject Contact Nicholas Tothill (https://directory.westernsydney.edu.au/search/name/Nicholas Tothill/)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=PHYS3001_23-SPR_PS_1#subjects)

Spring (2024)

Parramatta - Victoria Rd

On-site

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=PHYS3001_24-SPR_PS_1#subjects)