AS5500 - Research Skills in Astrophysics

Credits: 30.0  
Semester: 1 and 2  
Number of Lectures:  
Lecturer: Dr Anne-Marie Weijmans  
Academic Year: 2016-17

Overview
This module prepares students for carrying out an astrophysical research project, by concentrating on research and communication skills. These skills feature in assignments that are continuously assessed over the course of the two semesters. The first semester concentrates on literature searches and comparisons, presentation skills and astrophysical background. The second semester features a small research project that the students will carry out under supervision of a staff member. This module contains both lectures, where concepts are introduced, and tutorial sessions where the students discuss the course content amongst themselves, under guidance of an experienced tutor.

Aims & Objectives
The module aims to provide students with the skills needed to successfully complete a research project in astrophysics, place their research into a broader context, and communicate their research and results to their colleagues. More specifically, this module focuses on the following skills:

- use astrophysical knowledge to interpret literature and apply to research problems
- find relevant information from literature and other sources, and critically evaluate and interpret this information
- oral communication
- written communication
- time management and taking ownership of learning and research
- applying acquired skills to a small research project

Learning Outcomes
At the end of this module, students should be able to

- carry out an original research project, under supervision of an experienced researcher
- critically evaluate their own knowledge, and identify the knowledge they need to acquire to carry out a scientific task or project
- find information sources, extract relevant information, and critically evaluate, interpret and apply this information
- present the results and broader context of their research project, both orally and on paper

Synopsis
Astrophysical background. Literature searching and interpretation. Selecting and presenting a research paper. Picking a research topic. Writing and presenting a literature review. Presenting a recent paper in a journal club setting. Carrying out a research project, and writing a research report.

Pre-requisites
Entry to the School's Taught Postgraduate Astrophysics MSc programme.

Anti-requisites
None

Assessment
Continuous Assessment = 100%

Additional information on continuous assessment etc
Please note that the final details on continuous assessment will be communicated within the module. The assessment breakdown is expected to be

- Astrophysics take-home test 5%
- Comparison of two research papers 5%
- Oral presentation of research paper 10%
- Written literature review 25%
- Oral presentation of literature review 10%
Journal club presentation 10%
Written report on research project 35%

Recommended Books
Please view University online record:
http://resourcelists.st-andrews.ac.uk/modules/as5500.html

General Information
Please also read the general information in the School’s honours handbook.