

Basic details

UID	<input type="text"/>	Cohorts covered	Earliest cohort 2021-22	Latest cohort <input type="text"/>
Long title	<input type="text" value="Astrophysics"/>			
New code	<input type="text" value="PHYS60014"/>	New short title	<input type="text" value="Astrophysics"/>	
Brief description of module <i>(approx. 600 chars.)</i>	<input type="text" value="This module provides an overview of important topics in contemporary astrophysics. We will discuss: compact objects (giant planets and brown dwarfs, white dwarfs, neutron stars) including their properties and formation; the interstellar medium and gaseous nebulae and how astronomical observations can be used to infer their properties; galactic dynamics and the evidence for dark matter; black holes and accretion onto them in quasars, and gravitational lensing."/>			
				464 characters
Available as a standalone module/ short course?	<input type="text" value="N"/>			

Statutory details

Credit value	ECTS <input type="text" value="7.5"/>	CATS <input type="text" value="15"/>	Non-credit <input type="text" value="N"/>	HECOS codes	<input type="text"/>
FHEQ level	<input type="text" value="Level 6"/>				
					<input type="text"/>
					<input type="text"/>

Allocation of study hours

	Hours	
Lectures	<input type="text" value="26"/>	
Group teaching	<input type="text" value="10"/>	<i>Incl. seminars, tutorials, problem classes.</i>
Lab/ practical	<input type="text" value="0"/>	
Other scheduled	<input type="text" value="12"/>	<i>Incl. project supervision, fieldwork, external visits.</i>
Independent study	<input type="text" value="139.5"/>	<i>Incl. wider reading/ practice, follow-up work, completion of assessments, revisions.</i>
Placement	<input type="text" value="0"/>	<i>Incl. work-based learning and study that occurs overseas.</i>
Total hours	<input type="text" value="187.5"/>	
ECTS ratio	<input type="text" value="25.00"/>	

Project/placement activity

Is placement activity allowed?

Module delivery

Delivery mode	<input type="text" value="Taught/ Campus"/>	Other	<input type="text"/>
Delivery term	<input type="text"/>	Other	<input type="text" value="Term 1, exam in Term 3"/>

Ownership

Primary department	<input type="text" value="Physics"/>
Additional teaching departments	<input type="text" value="None"/>
	<input type="text"/>
	<input type="text"/>

Delivery campus **South Kensington**

Collaborative delivery

Collaborative delivery? **N**

External institution **N/A**
 External department **N/A**
 External campus **N/A**

Associated staff

Role	CID	Given name	Surname
Module Leader		Andrew	Jaffe
Lecturer		James	Owen

Learning and teaching

Module description

Learning outcomes	<p>On completion of this module you will be able to:</p> <ul style="list-style-type: none"> - describe the formation and structure of compact stellar and sub-stellar objects - describe the physical processes in the interstellar medium and explain how its properties are inferred from observations - describe the structure and components of galaxies (stars, gas, dark matter) - describe accretion processes around supermassive black holes - describe, state and apply the theory and phenomenology of gravitational lensing
Module content	<ul style="list-style-type: none"> • Compact Objects <ul style="list-style-type: none"> - The virial theorem for objects in hydrostatic equilibrium, the equations of state for a degenerate fermion gas, the mass-radius relation for compact objects and the Chandrasekhar mass limit for white dwarfs. • The Interstellar medium <ul style="list-style-type: none"> - Properties of the interstellar medium, the transfer of radiation through diffuse regions containing dust and gas, ionisation and recombination processes and Stromgren spheres. • Galaxies <ul style="list-style-type: none"> - disk galaxies and rotation curves; evidence for dark matter; central super-massive black holes • Quasars <ul style="list-style-type: none"> - accretion disks around black holes; Eddington limit and efficiency • Gravitational Lensing <ul style="list-style-type: none"> - lens equation and magnification; multiple images, microlensing and arcs/rings
Learning and Teaching Approach	Students will be taught over one term using a combination of lectures, office hours and directed exercises on theoretical work.
Assessment Strategy	100% summative assessment based on 2hr written examination.
Feedback	Problem sheets are provided weekly (9 in total) with questions and examples students can practise with.
Reading list	There is no prescribed textbook for the astrophysics option. Handouts and lecture notes are provided that are self-contained. There are several optional recommended text books for students wishing to explore topic in more depth. Two standard text books that cover most of the material are:

Quality assurance

Office use only

Date of first approval
 Date of last revision
 Date of this approval

QA Lead
 Department staff
 Date of collection

Module leader

Andrew Jaffe

Date exported

Date imported

Notes/ comments

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Programme structure

Associated modules

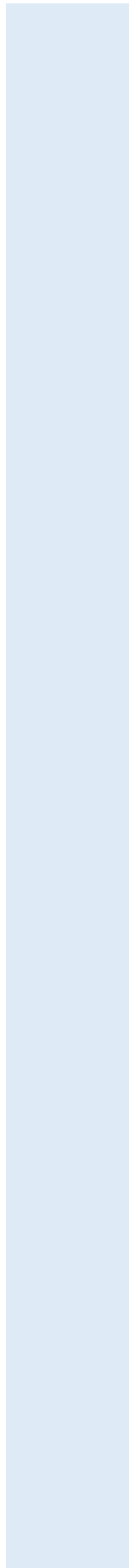
UID	Legacy code	Module title	Requisite type
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Programme structure

Associated programmes

UID	Legacy code	Programme title	Core?
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Assessment details

Grading method	Numeric	Pass mark	40%
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Assessments

Assessment type	Assessment description	Weighting	Pass mark	Must pass?
Examination	Written exam over 2 hours	100%	40% N	

100%