Imperial College London

Module Specification (Curriculu

Basic details

UID		Cohorts covered (Earliest cohort)	2024-25
Long title	Cosmology		
New code	PHYS70014	New short title	
Brief description of module *(approx. 600 chars.)*	To learn the basics of modern cosmology -- the study of the origins, evolution a universe -- and in particular the foundations of the Hot Big Bang theory. The mo theoretical, though with some observational input, and focuses on the applicatio aspects of physics on the grandest possible scale: the universe as a whole.		
Available as a standalone module/ short course?	N		

Statutory details

	ECTS	CATS	Non-credit	
Credit value	7.5	15	N	HECOS codes
FHEQ level	Level 7			

Allocation of study hours

	Hours	
Lectures	26	
Group teaching	10	*Incl. seminars, tutorials, problem classes.*
Lab/ practical	0	
Other scheduled	20	*Incl. project supervision, fieldwork, external visits.*
Independent study	131.5	*Incl. wider reading/ practice, follow-up work, completion of asse*
Placement	0	*Incl. work-based learning and study that occurs overseas.*
Total hours	187.5	
ECTS ratio	25.00	

Project/placement activity

Is placement activity allowed?	No

Module delivery

Delivery mode	Taught/ Campus	Other	
Delivery term		Other	Term 2, exam in term 3

Ownership

Primary department	Physics
Additional teaching departments	None
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		Jonathan	Pritchard

Learning and teaching

Module description

Learning outcomes	By the end of the module, the student should be able to: • Detail the evidence supporting the hot Big Bang theory • Appreciate the wide range of physics which finds simple applications in cosmology • Make predictions from cosmological models which can be compared against observa • Use modern observational data to constrain the cosmological parameters and unders basis behind their determination • Undertake further study on the topic at postgraduate level
Module content	• Introduction and History • Cosmological Models • Newtonian theory • General Relativity • FRW cosmology • Cosmography and Cosmological Parameters • Thermodynamics and The Hot Big Bang • Baryogenesis and the Sakharov Conditions • Big-Bang Nucleosynthesis • Cosmic Microwave Background • Open questions in the Hot Big Bang • Inflation • Structure Formation • Large-Scale structure • Galaxy Formation • Fluctuations in the Cosmic Microwave Background (CMB)
Learning and Teaching Approach	Students will be taught over one term using a combination of lectures, office hours and (non-assessed, but with solutions provided a week later as well as discussed in class; t also include 1-2 rapid feedback questions each: see Feedback section below).
Assessment Strategy	100% summative assessment based on final exam: written exam of 2 hours. Questions material previously seen, partially seen and unseen (where the latter are still answerab and intuition learned in course).

Feedback	Problem sheets are provided approx. weekly (8-10 in total) with questions and exampl practise with; while these assignments are not marked, comprehensive solutions to the provided a week after they are assigned. On each problem sheet, one or two questions be Rapid Feedback questions. Students can hand in their answers to these questions; then reviewed and annotated (without any no formal mark) by a teaching assistant for f Rapid Feedback questions are then also reviewed during a Rapid Feedback session w assistant.
Reading list	(1) An Introduction to Modern Cosmology (Liddle, A., 3rd Edition, Chichester, England: stock in library; (2) Extragalactic Astronomy and Cosmology: An Introduction (Schneider, P., 2nd Editio 2015): in stock in library; (3) Introduction to Cosmology (Ryden, B., 2nd Edition: Cambridge University Press, 20 library

Quality assurance

Date of first approval	
Date of last revision	
Date of this approval	
Module leader	Jonathan Pritchard

Office use only

QA Lead	
Department staff	
Date of collection	
Date exported	
Date imported	

Notes/ comments	

Template version

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Latest cohort

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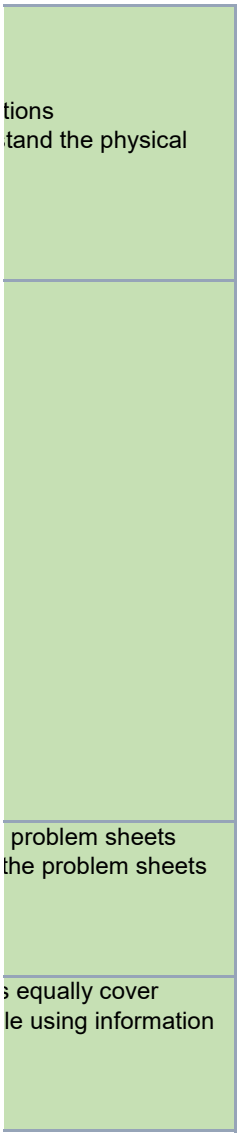
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Programme structure

Associated modules

UID	Legacy code	Module title	Requisite type

Assessment details

		Pass mark
Grading method	Numeric	50%

Assessments

Assessment type	Assessment description	Weighting	Pass mark	Must pass?
			50%	
Examination	2 hour written examinaiton	100%	50%	N