

Basic details

UID	<input type="text"/>	Cohorts covered	Earliest cohort 2019-20	Latest cohort 2019-20
Long title	Statistics of Measurement and the Summer Project			
New code	PHYS40005	New short title	Statistics of Measurement	
Brief description of module <i>(approx. 600 chars.)</i>	<p>This module further develops your knowledge and understanding of several practical aspects of physics as an extension of the Practical Physics module, which it runs alongside and continues after. In the Statistics of Measurement element of the module you learn about probability distributions, likelihood, and statistical testing with extensive use of examples in practical situations. In the Summer Project you work with a project partner, under the supervision of a demonstrator, to carry out a project in either practical physics, computational physics, or a blend of the two. Though the projects are usually proposed by demonstrators, you may come up with your own; the projects can (and do) cover a huge range of physics related topics.</p>			
Available as a standalone module/ short course?	N			

741 characters

Statutory details

Credit value	ECTS 7.5	CATS 15	Non-credit N	HECOS codes	<input type="text"/>
FHEQ level	4				

Allocation of study hours

	Hours	
Lectures	12	
Group teaching	6	<i>Incl. seminars, tutorials, problem classes.</i>
Lab/ practical	80	
Other scheduled	8	<i>Incl. project supervision, fieldwork, external visits.</i>
Independent study	81.5	<i>Incl. wider reading/ practice, follow-up work, completion of assessments, revisions.</i>
Placement		<i>Incl. work-based learning and study that occurs overseas.</i>
Total hours	187.5	
ECTS ratio	25.00	

Project/placement activity

Is placement activity allowed?

Module delivery

Delivery mode	Taught/ Campus	Other	<input type="text"/>
Delivery term		Other	Terms 2 and 3

Ownership

Primary department	Physics
Additional teaching departments	None
Delivery campus	South Kensington

Collaborative delivery

Collaborative delivery?	N
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External institution	N/A
External department	N/A
External campus	N/A

Associated staff

Role	CID	Given name	Surname
Module Leader		Yoshi	Uchida
		Mark	Richards
		Simon	Bland

Learning and teaching

Module description

Learning outcomes	<p>On completion of this module you will be able to:</p> <ol style="list-style-type: none"> 1) Recognise, use and construct a range of discrete and continuous probability distributions and know of their importance in mathematics and applied sciences. 2) Utilise some techniques of data analysis to better understand probability distributions when presented with a sample data set from a larger population. 3) Work cooperatively with a project partner and supervisor to plan and carry out an open-ended project over the course of several weeks. 4) Present your final project work in real time to a non-technical audience, and in formal language as part of a report.
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Module content	<p>Statistics of measurement covers several essential areas on the mathematics of probability, most notably discrete & continuous probability distributions, independent & dependent events, binomial, Poisson & Gaussian distributions, hypothesis testing and confidence intervals.</p> <p>The summer project can be anything that involves open-ended investigation in maths or science involving planning, testing, data collection and analysis. These can be laboratory based (e.g. making a machine to crush a soft drink can), outdoor (e.g. comparing the physics of London fountains) or anything computational (e.g. using a combination of original code, pre-existing code and software to analyse data on patterns in river systems). You work with one or more project partners, under the supervision of a demonstrator who will usually have proposed the project. You will usually meet your supervisor twice per week in the third term but this could possibly be much more frequent, if, for example, you are working in the same laboratory. In the final week of term you present your projects to school children, parents and teacher at the College open day and also write a formal report.</p>
Learning and Teaching Approach	<p>Statistics of Measurement is taught in a traditional lecture format in term 2 using a combination of lectures, small group teaching and office hours. There are no formal lectures for the project; students arrange project meetings with their supervisor with a frequency and nature of the meeting and the teaching style dependent on the nature of the project and the people involved. This would be a minimum of one hour per week of the project but is usually more; some students work in the same laboratory as their supervisor.</p>
Assessment Strategy	<p>The Summer Project is continuously assessed by an equally weighted combination of a formal report and a demonstrator-provided grade covering the whole of the project up to and including the open-day presentation. Criteria for all components of the summative assessment of the Summer Project are made available to students. The Statistics of Measurement element of the module will be assessed via in-course assessment.</p>
Feedback	<p>For Statistics of Measurement formative feedback will be provided throughout the module following formative assessment in the form of in-class quizzes, online tests, marking of handwritten problems sheets and verbal feedback for any practical or computational exercises.</p> <p>For the Summer Project, the supervisor will provide students with feedback during their projects as and when required. Formal online written feedback for the summer project will be available two weeks after the end of term 3 with opportunity for one-on-one discourse with staff at the start of the next academic year.</p>
Reading list	<p>The module is self-contained and no additional books are required to be purchased by the students. Further discussion of material covered by the module, along with relevant problems can be found in:</p> <ul style="list-style-type: none"> • Practical Physics, G L Squires, 4th ed, Cambridge University Press, 2001 • Experimental Measurements: Precision, Error and Truth, N C Barford, 2nd ed, Wiley, 1985

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

Date exported

Date imported

Notes/ comments

Programme structure

Associated modules

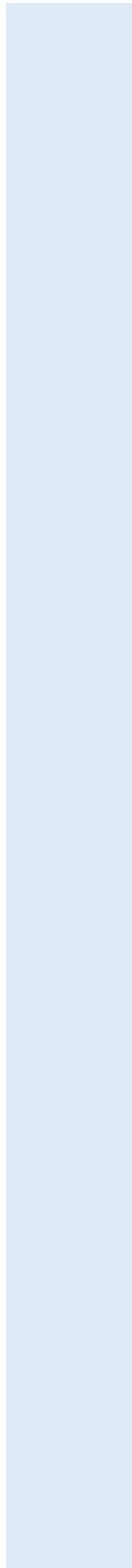
UID	Legacy code	Module title	Requisite type
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Programme structure

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?
Coursework	Formal report for project	35%		N
Coursework	Demonstrator assessment for project	35%		N
Coursework	In-course assessment of Statistics of Measurement element of module	30%		N

100%