



**UNIVERSITY OF
PORTSMOUTH**

COURSE SPECIFICATION

BSc (Hons) Physics, Astrophysics and Cosmology

COURSE SPECIFICATION

Please refer to the [Course Specification Guidance Notes](#) for guidance on completing this document.

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|---|---|
| Course Title | BSc (Hons) Physics, Astrophysics and Cosmology |
| Final Award | BSc (Hons) |
| Exit Awards | CertHE, DipHE. |
| Course Code / UCAS code (if applicable) | U2609PYC |
| Mode of study | Full time |
| Mode of delivery | Campus |
| Normal length of course | 4 years with placement |
| Cohort(s) to which this course specification applies | September 2023 onwards |
| Awarding Body | University of Portsmouth |
| Teaching Institution | University of Portsmouth |
| Faculty | Faculty of Technology |
| School/Department/Subject Group | School of Mathematics and Physics |
| School/Department/Subject Group webpage | https://www.port.ac.uk/about-us/structure-and-governance/organisational-structure/our-academic-structure/faculty-of-technology/school-of-mathematics-and-physics |
| Course webpage including entry criteria | https://www.port.ac.uk/study/courses/bsc-hons-physics-astrophysics-and-cosmology |
| Professional and/or Statutory Regulatory Body accreditations | Institute of Physics (recognised full accreditation pending 2018) |
| Quality Assurance Agency Framework for Higher Education Qualifications (FHEQ) Level | Level 4,5,6 |
| Institute of Physics | Core Curriculum specification |

This course specification provides a summary of the main features of the course, identifies the aims and learning outcomes of the course, the teaching, learning and assessment methods used by teaching staff, and the reference points used to inform the curriculum.

This information is therefore useful to potential students to help them choose the right course of study, to current students on the course and to staff teaching and administering the course.

Further detailed information on the individual modules within the course may be found in the relevant module descriptors and the Course Handbook provided to students on enrolment.

Please refer to the [Course and Module Catalogue](#) for further information on the course structure and modules.

Educational aims of the course

To develop competent physicists with a broad knowledge of physics and its application in astrophysics and cosmology.

In addition, and more generally, the course aims to:

- Provide a stimulating programme to develop a critical and reflective knowledge and understanding of physics, astrophysics and cosmology

- Develop critical, analytical, practical, professional, problem solving, research and communication skills and prepare students for postgraduate study and / or professional qualifications in employment
- Provide insight and experience, to think independently, analytically and creatively in some areas of physics, astrophysics and cosmology to the frontiers of research.
- Develop the skills necessary for life-long independent learning to synthesise new and existing knowledge to generate ideas and develop creative solutions of benefit to the economy and society.
- Develop an appreciation of what constitutes ethical scientific behaviour and encourage a sense of social responsibility.
- Provide a supportive, challenging, stimulating and rewarding study environment to encourage curiosity and the ability to seize opportunities for development.
- Develop a range of key life, employability and communication skills through a range of individual and group opportunities to maximise their career potential and potential to add value to the communities to which they belong.
- Accommodate student needs in relation to maximising their career potential by enabling them to develop knowledge, understanding and skills in their chosen areas of interest.
- Examine in depth some area of contemporary astrophysics and cosmology enabling critical engagement with research publications.

Course Learning Outcomes and Learning, Teaching and Assessment Strategies

The [Quality Assurance Agency for Higher Education \(QAA\)](#) sets out a national framework of qualification levels, and the associated standards of achievement are found in their [Framework for Higher Education Qualifications](#) document.

The Course Learning Outcomes for this course are outlined in the tables below.

A. Knowledge and understanding of:

| LO number | Learning outcome | Learning and Teaching methods | Assessment methods |
|-----------|--|--|---|
| A1 | The principles of Mechanics and Relativity, Quantum Atomic and Nuclear Physics, Condensed Matter Physics, Oscillations and Waves, Electromagnetism, Optics, Thermodynamics and Statistical Physics, solid state physics. (QAP, IOP) the Physics of stars, galaxies and other astrophysical systems, and the principles of Cosmology. | Lectures, Problem classes, Problem sets, Online tutorials. | Examination, Set coursework, Problem sets, Reports. |
| A2 | The Physics of stars, galaxies and other astrophysical systems, and the principles of Cosmology. | Lectures, Problem classes, Problem sets, Online tutorials. | Examination, Set coursework, Problem sets, Reports. |
| A3 | The methods of solution of problems and the application of physics through the design and execution of practical observational and data analysis investigations, and mathematical and computational modelling with particular reference to astrophysics and cosmology. | Problem classes, Laboratory and Computational modelling workshops. | Reports and presentations. |

B. Cognitive (Intellectual or Thinking) skills, able to:

| | Learning outcome | | Assessment |
|--|------------------|--|------------|
|--|------------------|--|------------|

| LO number | | Learning and Teaching methods | methods |
|-----------|---|--|---|
| B1 | Plan, conduct and report on a programme of research at undergraduate level including the formulation and testing of hypotheses; critically evaluate arguments, assumptions and data, make judgements and frame questions to achieve a solution to a problem or identify a range of solutions. | Project work, Laboratory and Computational investigations. | Reports, Dissertations and Presentations. |
| B2 | Select, apply and evaluate appropriate mathematical, scientific, laboratory and computer-based methods and principles in the analysis and solution of a variety of physical problems in an independent manner to synthesise new and existing knowledge within and across discipline boundaries with particular reference to astrophysics and cosmology. | Lectures, Tutorials, Laboratory work, Problem-based learning. | Problem sets, Reports, Examination. |
| B3 | Be intellectually curious, creative, critical and innovative in the analysis and solution of physical problems and presentation of results questioning principles, practices and boundaries and seizing opportunities for development. | Supervised project work, Problem-based learning, Lecturer modelling of problem solution. | Problem sets, Reports, Examination, Written and Oral presentations. |

C. Practical (Professional or Subject) skills, able to:

| LO number | Learning outcome | Learning and Teaching methods | Assessment methods |
|-----------|---|--|--|
| C1 | Plan, conduct and report on practical laboratory, astronomical observational, theoretical or computational scientific investigations. Collect, record and analyse data using a variety of suitable techniques, critically comparing astronomical observations with theoretical or computational model predictions as appropriate. | Laboratory, Computational and data analysis exercises, Project work, Problem-based learning. | Problem sets, Reports, Written and Oral presentations. |
| C2 | Undertake laboratory and other investigations in a responsible and safe manner, paying due attention to risk assessment, rights of access, ethical practice, relevant health and safety regulations, and sensitivity to the impact of investigations on the environment, sustainability and human health | Lectures, Laboratory, Computational and data analysis exercises, Project work. | Reports, Written and Oral presentations. |

D. Transferrable (Graduate and Employability) skills, able to:

| LO number | Learning outcome | Learning and Teaching methods | Assessment methods |
|-----------|--|------------------------------------|--|
| D1 | Develop an adaptable and flexible approach to study and identify and work towards targets for personal, academic and career development including commercial awareness and opportunities for enterprise, incorporating skills necessary for self-managed and life-long learning. | Lectures, Tutorials, Project work. | Reports, Written and Oral presentations. |
| D2 | Analyse and solve problems using theoretical, computational, observational and practical techniques. Communicate results of investigations appropriately to a variety of audiences in written, oral and graphical forms | Lectures, Tutorials, Project work | Reports, Written and Oral presentations. |

| | | | |
|----|--|---|---|
| | using a variety of media | | |
| D3 | Identify individual and collective goals and responsibilities and perform in a manner appropriate to these roles | Group work in practical, Computational or data analysis problem-based learning exercises. | Reports, Written and Oral presentations |

Academic Regulations

The current University of Portsmouth [Academic Regulations: Examination & Assessment Regulations](#) will apply to this course. Approved course exemptions can be found [here](#).

Support for Student Learning

The University of Portsmouth provides a comprehensive range of support services for students throughout their course, details of which are available at the [MyPort](#) student portal. Personal and project tutors provide academic and professional support throughout the course.

Evaluation and Enhancement of Standards and Quality in Learning and Teaching

The University of Portsmouth undertakes comprehensive monitoring, review and evaluation of courses within clearly assigned staff responsibilities. Student feedback is a key feature in these evaluations, as represented in our [Policy for Listening to and Responding to the Student Voice](#) where you can also find further information.

Reference Points

The course and outcomes have been developed taking account of:

- [University of Portsmouth Curriculum Framework Specification](#)
- [University of Portsmouth Vision](#)
- [Office for Students Conditions of Registration](#)
- [University of Portsmouth Code of Practice for Work-based and Placement Learning](#)
- [Quality Assurance Agency UK Quality Code for Higher Education](#)
- [Quality Assurance Agency Qualification Characteristic Statements](#)
- [Quality Assurance Agency Subject Benchmark Statement](#)
- [Quality Assurance Agency Framework for Higher Education Qualifications](#)
- Requirements of Professional and/or Statutory Regulatory Bodies: Institute of Physics
- Vocational and professional experience, scholarship and research expertise of the University of Portsmouth's academic members of staff
- National Occupational Standards

Changes to your course/modules

The University of Portsmouth has checked the information provided in this Course Specification and will endeavour to deliver this course in keeping with this Course Specification. However, changes to the course may sometimes be required arising from annual monitoring, student feedback, and the review and update of modules and courses.

Where this activity leads to significant changes to modules and courses there will be prior consultation with students and others, wherever possible, and the University of Portsmouth will take all reasonable steps to minimise disruption to students.

It is also possible that the University of Portsmouth may not be able to offer a module or course for reasons outside of its control, for example, due to the absence of a member of staff or low student registration numbers. Where this is the case, the University of Portsmouth will endeavour to inform applicants and students as soon as possible, and where appropriate, will facilitate the transfer of affected students to another suitable course.

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