



Erasmus+ Study Guide  
2019/20  
Physics

## Guide for incoming Erasmus students 2019/2020

Hello!

The School of Physics is right at the heart of the University of Bristol precinct, and benefits from a £7 million suite of practical teaching laboratories dedicated to undergraduate students. You can choose from a range of general and specialist subjects, taught in a world class research environment by specialists working in many different fields of physics.

We hope that this booklet will help you to choose the correct units. Erasmus students are usually offered units in **either** third year (Level 6) **or** fourth year (Level 7). In special circumstances, second year units may also be available. Please note that Bristol students do not mix units from different levels, and **the timetable can make it very difficult** to do so. If you choose lecture units from different years we cannot guarantee that you will be able to take all of them.

Teaching will take place over two teaching blocks. Examinations are held in January and May/June. Please note that as an Erasmus exchange student **you only have one attempt at the exams** and **you will not be able to take the resits** in September.

Term dates for 2019/20 are at [bristol.ac.uk/university/dates/](http://bristol.ac.uk/university/dates/)

This booklet contains a list of units that are likely to be offered by the School of Physics next year, for guidance. **Please note that there is no guarantee that a particular unit will run.** You can find more information on each of the undergraduate units at [www.bris.ac.uk/unit-programme-catalogue/](http://www.bris.ac.uk/unit-programme-catalogue/) including prerequisites. Please note that some units at level 7 are available to postgraduates only – so refer to the list on the following pages first.

Students on an exchange with the School of Physics may be able to do some courses in other schools within the university if the other school permits it. If you are interested in units outside physics, please make enquiries directly to the relevant school.

If you need to develop your academic English language skills, you can take optional units at CELFS (the Centre for English Language and Foundation Studies). These units focus on listening and speaking, reading and writing, and advanced grammar. Visit the CELFS website to register for these units: [www.bristol.ac.uk/english-language/study/current-students/for-undergraduate/open-units/](http://www.bristol.ac.uk/english-language/study/current-students/for-undergraduate/open-units/)



**We look forward to welcoming you!**

**Dr Konstantinos Petridis**  
*Study Abroad Academic Director*  
*School of Physics*

*March 2019*

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W: <http://www.bristol.ac.uk/physics/>

This information is correct at the date of publication, March 2019. We anticipate that the units shown will be offered in 2019/20 but we cannot guarantee that all optional units will be available.

# Level 6 third year units

## Lecture-based units

**PHYS30008 Analytical Mechanics - 5 ECTS**

**PHYS31211 Biophysics - 5 ECTS**

**PHYS31111 Condensed Matter Physics - 5 ECTS**

**PHYS34011 Galaxies - 5 ECTS**

**PHYS34012 High Energy Astrophysics - 5 ECTS**

**PHYS30027 Introduction to Environmental Physics - 5 ECTS**

**PHYS30025 Materials Physics - 5 ECTS**

**PHYS30015 Methods of Theoretical Physics 3 - 5 ECTS**

**PHYS32600 Nanophysics - 5 ECTS**

**PHYS32012 Particle Physics - 5 ECTS**

**PHYS32011 Quantum Physics - 5 ECTS**

**PHYS30021 Solid State Physics** *Electrons in Crystals, and Semiconductors and Magnetism* - 10 ECTS

**PHYS34013 Stellar Structure and Evolution - 5 ECTS**

## Units which are not lecture-based

**PHYS38012 Computational Physics - 5 ECTS**

For those with a working knowledge of programming in C or Python.

**PHYS30009 Introduction to Computational Physics - 5 ECTS**

**PHYS38013 Group Work - 5 ECTS**

**PHYS30026 Practical Physics (Laboratory) - 5 ECTS**

**PHYS38010 Physics World - 5 ECTS**

**PHYS38011 Skills For Science - 5 ECTS**

Aims to develop organisational, technical and written communication skills.

**PHYS39330 Physics Project - 15 ECTS**

A shorter version of the project PHYSM3406 (see next page). A list of topics is available from the School of Physics (email [Phys-ug@bristol.ac.uk](mailto:Phys-ug@bristol.ac.uk)).

**PHYS39331 Physics Dissertation - 15 ECTS**

Write a major (10 000 words) review of a single topic. A list of topics is available from the School of Physics (email [Phys-ug@bristol.ac.uk](mailto:Phys-ug@bristol.ac.uk)); alternatively students may suggest their own topic.

**PHYS30007 Industrial Group Project - 15 ECTS**

A list of topics is available from the School of Physics (email [Phys-ug@bristol.ac.uk](mailto:Phys-ug@bristol.ac.uk)); students work in groups with an industrial partner.

## Level 7 fourth year units

### Lecture-based units

**PHYSM3416 Advanced Quantum Physics - 5 ECTS**

**PHYSM1900 General Relativity and Cosmology - 5 ECTS**

**PHYSM0038 Magnetism and Superconductivity - 5 ECTS**

**PHYSM0800 Theoretical Particle Physics - 5 ECTS**

You should take PHYS30008 Analytical Mechanics or equivalent before you study this unit.

**PHYSM3409 The Physics of Gas and Plasma in The Universe - 5 ECTS**

**PHYSM0300 The Physics of Phase Transitions - 5 ECTS**

**PHYSM3417 Relativistic Field Theory - 5 ECTS**

You should take PHYS30008 Analytical Mechanics, PHYS30015 Methods of Theoretical Physics 3 or equivalent before you study this unit.

**PHYSM2100 Semiconductor Physics - 5 ECTS**

**PHYSM0037 Soft and Active Matter - 5 ECTS**

**PHYSM0007 Surface Physics - 5 ECTS**

### Units which are not lecture-based

**PHYSM0032 Advanced Computational Physics - 5 ECTS**

For students with an interest in computational methods who wish to learn the basics of parallel programming, and parallel computational methods for physics. You will need a working knowledge of either C (C++) or Python.

**PHYSM3407 Current Topics in Physics - 5 ECTS**

Choose one of four strands: astrophysics; condensed matter; particle physics. Topics are assessed by written course work.

**PHYSM0023 Foundations of Modern Physics - 5 ECTS**

Topics are assessed by written course work.

**PHYSM3100 Student Seminar - 5 ECTS**

Research and deliver a talk on a subject; listen, comprehend and question other talks on related subjects. The class is divided into groups of approximately ten students which meet weekly. Each member of the group will give one talk, and will participate in leading a discussion.

**PHYSM3406 Physics Research Project - 30 ECTS**

Undertake substantial research in physics. A list of topics is available from the School of Physics (email [Phys-ug@bristol.ac.uk](mailto:Phys-ug@bristol.ac.uk)).

**PHYSM3200 Physics Project 432 - 15 ECTS**

A shorter version of the project PHYSM3406. A list of topics is available from the School of Physics (email [Phys-ug@bristol.ac.uk](mailto:Phys-ug@bristol.ac.uk)).

### More information

Do you need more information? If so, here are some places you can try:

School of Physics web site [bristol.ac.uk/physics/](http://bristol.ac.uk/physics/) to find out more about the school's activities

University of Bristol unit and programme catalogue for detailed information: [bris.ac.uk/unit-programme-catalogue/](http://bris.ac.uk/unit-programme-catalogue/)

Still stuck and need help? Please ask Dr Konstantinos Petridis ([Konstantinos.Petridis@bristol.ac.uk](mailto:Konstantinos.Petridis@bristol.ac.uk)) for advice - or email the School of Physics office at [Phys-ug@bristol.ac.uk](mailto:Phys-ug@bristol.ac.uk).

The Global Opportunities team are also able to help and advise on a range of issues - contact them on [global-opportunities@bristol.ac.uk](mailto:global-opportunities@bristol.ac.uk)