Department of Physics

UNIVERSITY OF BATH

Physics
Physics with Astrophysics

Undergraduate Programmes Handbook
2019-2020

This handbook is available in electronic format via the Department Moodle (virtual learning environment) pages. The online version includes live links to information sources.

If you require a copy in large font or another format please contact the Undergraduate Programme Administrator at phys-prog-admin@bath.ac.uk

Every effort has been made to ensure that the information contained within this handbook is accurate and up-to-date.

ACADEMIC YEAR 2019-20

These dates are correct at the time of going to print – please check on the University's semester dates website for up-to-date information during the year: http://www.bath.ac.uk/corporate-information/academic-year-dates/

Semester 1	Dates
New student arrivals	Saturday 21 September 2019 - Sunday 22 September 2019
Welcome Week	Monday 23 September 2019 - Sunday 29 September 2019
Semester 1	Monday 30 September 2019 - Friday 13 December 2019
Semester 1 vacation	Monday 16 December 2019 - Friday 3 January 2020
Semester 1	Monday 6 January 2020 - Friday 24 January 2020

Semester 2	Dates
Semester 2	Monday 3 February 2020 - Thursday 3 April 2020
Semester 2 vacation	Monday 6 April 2020 - Friday 17 April 2020
Semester 2	Monday 20 April 2020 - Friday 29 May 2020

Contents

1 Welcome

Welcome to the 2019-20 academic session in the Department of Physics!

This handbook provides a comprehensive overview of the undergraduate degree programmes offered by the Department of Physics. It contains the key information you will need as a student within the Department, so please familiarise yourself with its contents and save this URL in your favourites list, so that you can refer to it throughout the year. If you have any questions regarding procedural or other aspects of your course, do look in this handbook first; you may well find the information you need. If you cannot find the answer to your question in the handbook, please consult your tutor, your Director of Studies, the Undergraduate Programmes Administrator, or the Director of Teaching.

Best wishes for a successful and enjoyable year with us!

Dr Frances Laughton
Director of Teaching
September 2019

1.1 About This Handbook

This Handbook is intended for all students on the following programmes (including all Study Year Abroad and Placement variants) in the academic year 2019/20:

- BSc (Hons) Physics;
- BSc (Hons) Physics with Astrophysics;
- MPhys (Hons) Physics;
- MPhys (Hons) Physics with Astrophysics.

Please note that the contents of this Handbook are accurate at 9th September 2019 but that information may sometimes be subject to change after this Handbook has been issued. Your Director of Studies or Unit Convenor will inform you of any changes that will affect your programme or a particular unit. For further information about unit and programme changes, see the **Unit and programme changes** section in this Handbook.

While this Handbook signposts information about **regulations for students**, it does not have regulatory status itself, and the Regulations available online (Regulations for Students: www.bath.ac.uk/publications/regulations-for-students and Assessment Regulations:www.bath.ac.uk/corporate-information/new-framework-for-assessment/) are the most up-to-date and take precedence over the contents of this Handbook.

If in doubt about what applies to you, or if your circumstances change (for example if you are returning from a suspension of study, or transferring to a different programme) please contact your Director of Studies for advice (see table below).

In the following pages a number of job titles are referred to; for the 2019-20 academic year the people who have responsibility for these positions are:

Role	Name
Head of Department	Prof Nicholas Brook
Director of Teaching & Resources	Dr Frances Laughton
Director of Studies for Years 1 & 2 Physics	Dr Steven Andrews
Director of Studies for Years 3-5 Physics	Dr Andriy Gorbach
Director of Studies for Maths & Physics	Dr Alessandro Narduzzo
Senior Tutor	Dr Gary Mathlin
Placement Tutor	Dr Steven Davies
Faculty of Science Placements Manager	Ms Louise Oliver
Study Year Abroad Tutor	Dr Andriy Gorbach
Departmental Library Liaison Rep	Dr Frances Laughton
Students' Union Liaison Officer	Dr Frances Laughton
Undergraduate Programmes Administrator	Mrs Santina Kennedy
Undergraduate Programmes Administrator Assistant	Mr Adam Cotton

This handbook is available online on the Moodle course page for Physics students. It is also available in alternative formats on request; please contact the Undergraduate Programme Administrator (phys-prog-admin@bath.ac.uk) should you require this.

The details of the degree schemes in this handbook are correct at the time of publication. However, the Department of Physics and/or the University may, after due consideration and consultation, make changes to degree programmes, regulations, etc. for this and/or future academic years. If in any doubt, please consult the Director of Teaching and Resources.

1.2 Department of Physics Teaching and Administration Staff

Name	Role	Tel. ext.	Room	Email prefix (@bath.ac.uk)
Dr Steve Andrews	Senior Lecturer	6651	3W 5.9	s.r.andrews
Prof Simon Bending	Professor	5173	3W 3.6	s.bending
Prof David Bird	Professor	3383	3W 3.11A	d.bird
Prof Tim Birks	Professor	4711	3W 3.17B	t.a.birks
Dr Philippe Blondel	Senior Lecturer	5237	WH 3.46	p.blondel

Dr Richard Bowman	Lecturer & Royal Society Research Fellow	4565	3W 2.07C	r.w.bowman
Dr Simon Crampin	Senior Lecturer	4808	WH 3.41	s.crampin
Dr Enrico Da Como	Reader	4368	WH 3.40	e.da.como
Dr Sara Dale	Royal Society Research Fellow	5768	3W 5.06C	s.dale
Dr Steven Davies	Senior Lecturer & Director of Studies (Maths & Physics)	6472	3W 4.20	s.r.davies
Dr Hendrik van Eerten	Lecturer	3193	WH 3.48	h.j.van.eerten
Dr Andriy Gorbach	Senior Lecturer, Director of Studies (Years 3&4 Physics) & Study Year Abroad Tutor	6307	3W 3.03A	a.gorbach
Dr Sergey Gordeev	Senior Lecturer & Departmental Library Rep	5154	3W 4.17	s.gordeev
Dr Adelina Ilie	Reader	6898	3W 4.16	a.ilie
Prof Jonathan Knight	Professor & Pro-Vice-Chancellor (Research)	6141	4W 3.22	j.c.knight
Dr Richard James	Deputy Head of Department	5467	3W 2.02D	r.james
Dr Frances Laughton	Director of Teaching & Resources	4361	3W 3.16	f.r.laughton
Miss Joanna Łucyszyn	Undergraduate Programme Administrator	5579	3W 2.03	j.z.lucyszyn
Dr Gary Mathlin	Senior Teaching Fellow, Director of Studies (Years 1&2 Physics) & Senior Tutor	6441	3W 3.04	g.mathlin
Mr Joe Mills	Teaching & Research Support Technician (electronics)		3W 3.19B	jm2988
Dr Peter Mosley	Senior Lecturer	4567	3W 4.05C	p.mosley
Dr Marcin Mucha-Kruczynski	Lecturer	5543	3W 5.03	m.mucha-kruczynski
Prof Carole Mundell	Professor & Head of Department	5645	WH 3.53	c.g.mundell
Dr Alessandro Narduzzo	Teaching Fellow	3324	3W 3.11	a.narduzzo
Prof Alain Nogaret	Professor	5609	3W 4.19	a.r.nogaret
Dr Josh Nunn	Reader	5207	3W 4.02	j.a.s.nunn

Dr Kristina Rusimova	Prize Fellow	4360	3W 2.07B	k.r.rusimova
Prof Philip Salmon	Professor	3698	3W 5.01	p.s.salmon
Dr Patricia Schady	Lecturer	4164	3W 2.02C	p.schady
Dr Victoria Scowcroft	Lecturer	3132	3W 2.02E	v.scowcroft
Dr Chris Shearwood	Senior Teaching Support Technician	6169	3W 3.23	c.shearwood
Prof Dmitry Skryabin	Professor	5874	3W 3.15	d.v.skryabin
Dr Peter Sloan	Senior Lecturer	4566	3W 4.05B	p.sloan
Dr Paul Snow	Senior Lecturer	6897	3W 4.05A	p.a.snow
Dr James Stone	Research Fellow	4369	WH 3.41C	j.m.stone
Dr Anton Souslov	Lecturer	4340	3W 2.07A	a.souslov
Dr Kei Takashina	Senior Lecturer	5395	3W 5.02	k.takashina
Dr David Tsang	Lecturer	4539	3W 2.02A	d.tsang
Prof Ventsislav Valev	Royal Society Research Fellow & Reader	3370	3W 2.02B	v.k.valev
Dr Carolin Villforth	Lecturer	5420	WH 3.49	c.villforth
Prof William Wadsworth	Professor	6946	3W 3.14	w.j.wadsworth
Prof Alison Walker	Professor	3322	3W 3.05	a.b.walker
Ms Isabel Wells	Undergraduate Laboratory Technician & Department Support Technician	5369	3W 3.19	i.wells
Dr Jennifer Williams	Technical supervisor	5369	3W 3.19	j.williams
Dr Daniel Wolverson	Reader	3321	3W 2.04	d.wolverson
Dr Stijn Wuyts	Reader	4598	WH 3.51	s.wuyts
Dr Anita Zeidler	Lecturer	6645	3W 3.03B	a.zeidler

Undergraduate Taught Programme Administrators	3W 2.03	phys-prog-admin@bath.ac.uk

2 Description of Degree Programmes

2.1 Background to Broad Aims of the Degree Programmes

The Department of Physics offers undergraduate degree programmes which lead to the qualification of Master of Physics (MPhys) or Bachelor of Science (BSc). There are a number of options for our MPhys degrees; students may choose between a four-year full time programme, four-year programmes which include a research placement or study year abroad, or five-year programmes which also include a professional placement year. BSc degrees have similar options, with a three-year full time programme, or four-year programmes with a professional placement year or a study year abroad. The degree programmes are described in detail in the Sections below. The way in which students register for a particular programme or change their registration during their course of study is described in Chapter 3. The Department also offers, jointly with the Department of Mathematical Sciences, degrees in Mathematics and Physics. Further details on all of our programmes are at http://www.bath.ac.uk/catalogues/2019-2020/ph/ph-proglist-ug.html .

We aim to cultivate physicists who combine a high level of numeracy with the ability to apply their skills and experience. We aim to develop in our students the ability to think clearly and logically, and to be enquiring, open minded, imaginative and creative. Our programmes are designed to develop students' awareness of the role of physics in contemporary applications, together with the skills of logical thought and a flexibility of mind that will help them continue their personal development throughout their subsequent career. It is not expected that all graduates will choose a career within mainstream physics, but we aim that all will leave with a good understanding of the fundamentals of the discipline, good mathematical, practical and computing skills, and an ability to develop and adapt their knowledge and skills to unfamiliar situations and new challenges.

Our degree programmes are fully compliant with the QAA's (Quality Assurance Agency for Higher Education) subject benchmark statement for Physics, Astronomy and Astrophysics (https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-physics-astronomy-and-astrophysics-17.pdf?sfvrsn=2f94f781_12). This framework prescribes Physics graduates' expected level of achievement and knowledge; for example, the "M level" outcomes expected of an MPhys graduate, and the "H level" outcomes expected of someone receiving a BSc degree. All Physics and Physics with Astrophysics programmes share a common first two years, which covers core material in physics (theory and practical), mathematics and computing.

2.2 Unit and Programme Catalogues

This is where you will find details about all individual units for the current academic year:

http://www.bath.ac.uk/catalogues/

The Catalogues also provide links to the University's assessment regulations, showing how these are applied to programmes of study.

2.3 Professional Body Accreditation

All of our programmes are fully accredited by the Institute of Physics. Accreditation allows our graduates to become members of the Institute of Physics. The Institute of Physics currently requires an accredited integrated MPhys/MSci degree for Chartered Physicist status; BSc Physics graduates partially fulfil the IoP's educational requirements for CPhys, but will have to demonstrate equivalence to an accredited integrated Masters degree during the application process.

2.4 Full Time BSc Degrees

The three-year BSc programmes have the pattern:

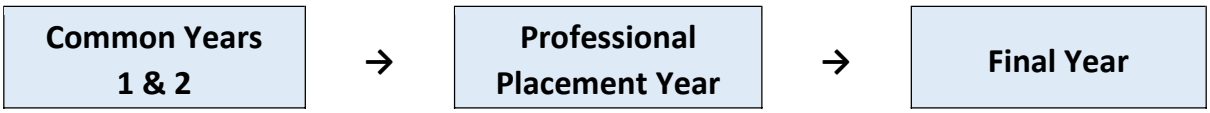
with degree titles (and University codes):

USPH-AFB01 BSc in Physics
USPH-AFB10 BSc in Physics with Astrophysics

BSc Physics programmes lay emphasis on the fundamentals of the subject, whilst offering students a wide range of final year options that are intended to develop the versatility, knowledge and skills that employers look for in a physics graduate. **BSc Physics with Astrophysics** programmes aim to give students knowledge and understanding in fundamental areas of physics (particularly astronomy and astrophysics), whilst also offering students a wide range of final year options.

2.5 BSc Degrees with Professional Placement Year

There are also four-year BSc programmes which include a professional placement year. These have the pattern:



with degree titles (and University codes):

USPH-AKB02 BSc in Physics with placement
USPH-AKB10 BSc in Physics with Astrophysics with placement

The final years of these programmes contain the same allowed choice of final year units as those of the full-time BSc degrees above. Students taking a degree with a professional placement year spend the third year of their degree programme pursuing a project in an approved company or research organisation. The professional placement year helps to develop the awareness, maturity and self-confidence that graduate employers seek. The placement is assessed, but does not contribute towards a student's degree classification.

During the professional placement year students are employees of the company/organisation and the great majority are paid for their work, usually at rates similar to those of starting graduates. Most placements are in the UK, but may also take place abroad. Students are given a great amount of help and guidance in obtaining placements and the Department has close and long-standing relations with a number of organisations which host placements. Ultimately, however, a professional placement year depends on a company offering a job to the student, and for this reason placements cannot be guaranteed. More details about the professional placement year can be found in Chapter 5.

2.6 BSc Degrees with a Study Year Abroad

There are also four-year BSc programmes which include a study year abroad. These have the pattern:

with degree titles (and University codes):

USPH-AAB02 BSc in Physics with Study year abroad
USPH-AAB10 BSc in Physics with Astrophysics with Study year abroad

The final years are again identical to those of the equivalent full-time BSc degrees.

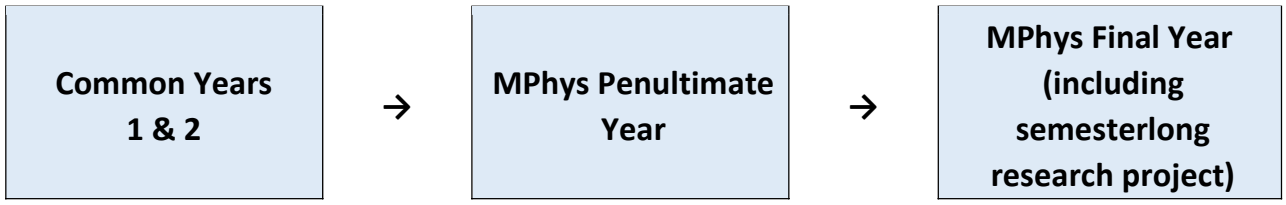
Students taking a degree with a study year abroad spend the third year of their degree programme studying at an overseas university. The aim is to allow students to gain knowledge of a foreign language and/or culture, and to widen their experience as an undergraduate. For BSc degrees, students have a good deal of freedom to choose their programme of study, and the year abroad does not count towards their degree classification.

2.7 MPhys Degrees

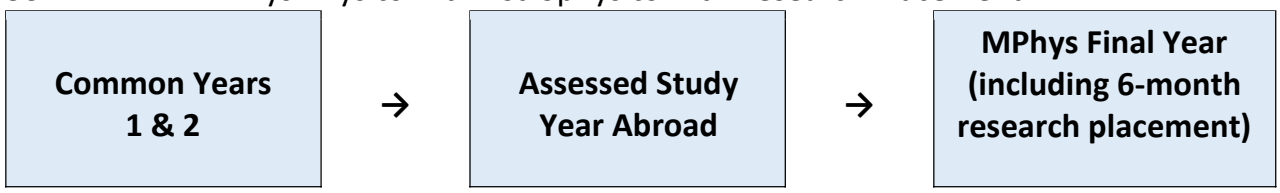
There are five variants of MPhys degree programmes in Physics and Physics with Astrophysics, with the following patterns:

USPH-AFM02 MPhys Physics (full-time)

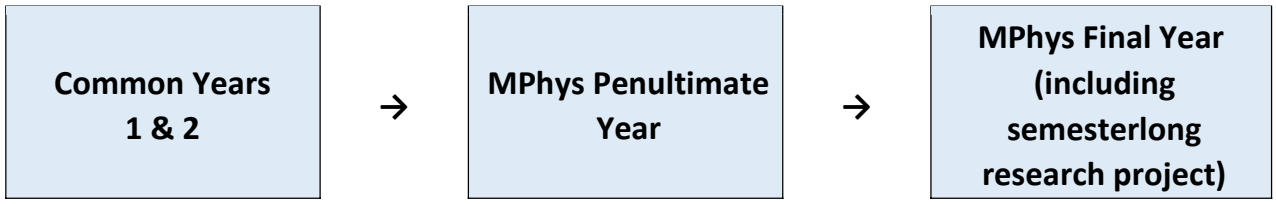
USPH-AFM10 MPhys Physics with Astrophysics (full-time)



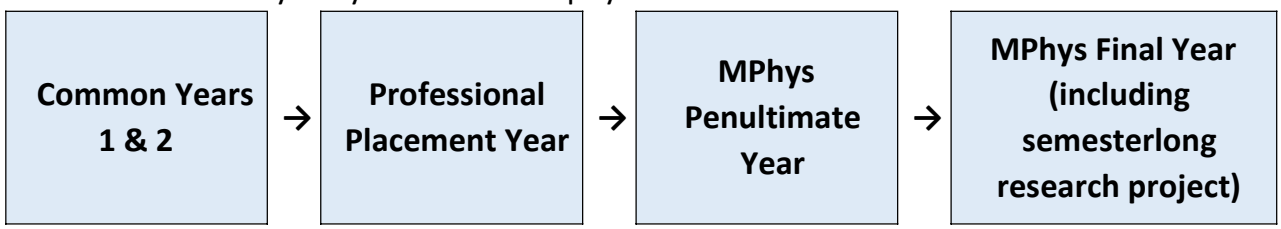
USPH-AFM04 MPhys Physics with Research Placement
USPH-AFM11 MPhys Physics with Astrophysics with Research Placement



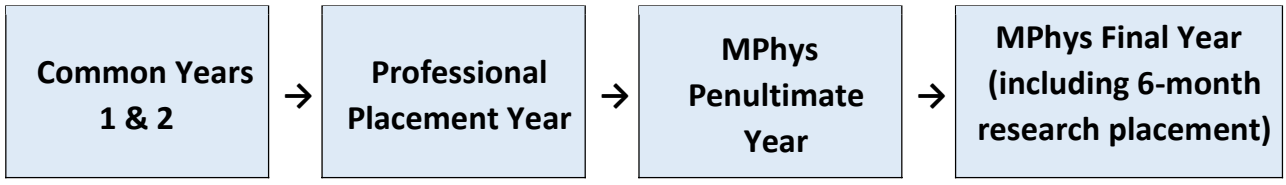
USPH-AAM03 MPhys Physics with Study year abroad
USPH-AAM10 MPhys Physics with Astrophysics with Study year abroad



USPH-AKM03 MPhys Physics with Professional Placement
USPH-AKM10 MPhys Physics with Astrophysics with Professional Placement



USPH-AKM04 MPhys Physics with Professional and Research Placements
USPH-AKM11 MPhys Physics with Astrophysics with Professional and Research Placements



The MPhys programmes are designed for students who wish to study physics and astrophysics to a greater depth and breadth than is possible within the BSc programmes. They provide a unified, coherent, and broadly-based training in physics and are designed to give students a greater understanding and appreciation of the subject. MPhys programmes are aimed at able and committed students who intend to practice the profession of physics

or a closely related discipline in academic research or industry. Students registered for an MPhys degree who fail to reach a satisfactory standard in their first or second year examinations are required to change their registration to BSc.

The **MPhys with research placement programme** includes a 6-month research placement that takes place within an external organisation from July of Year 3 to January of Year 4. Students undertake a high-level research project on a physicsrelated topic. The research placement is assessed, and contributes towards the final degree classification.

The 5-year **MPhys with professional placement** and **MPhys Physics with professional and research placements** degree programmes are identical to the 4-year **full-time MPhys** and **MPhys Physics with research placement** programmes respectively, apart from the addition of a year-long professional placement after year 2.

Students on the **MPhys with study year abroad** programme must take approved courses in physics of an appropriate level at their chosen overseas university. They are encouraged to undertake research work within a research group at the host institution as well as attending formal courses. For MPhys students the study year abroad contributes towards the final degree classification.

3 Programme Description: Structure of the Programme

3.1 Semesters and Units

Please note that the content of the programme description below is correct at the time of production of this Handbook and that programmes and units may be subject to reasonable change (see **Unit and Programme Changes** below).

Current versions of unit and programme descriptions are available via the online Unit and Programme Catalogues: http://www.bath.ac.uk/catalogues/

Degree courses at Bath are modular, with degree programmes built upon a set of individual courses, referred to as units. The units fit into a semester pattern. Each semester lasts for about 14 weeks, of which 11 are teaching weeks and the remaining weeks form the revision/assessment period. With a few exceptions (detailed below), units taken in the teaching period of a semester are examined in the associated assessment period. The first semester has its 11 teaching weeks running from October to December, with the revision/assessment period occurring in January. The teaching period of the second semester is usually split either side of the Easter break. Full details of the dates of the academic year are available at https://www.bath.ac.uk/corporate-information/academic-year-dates/ .

In each semester you will take units to a value of 30 credits. Most units are of value 6 credits, so that students usually undertake 5 units each semester, with the overall assessment for each year based on the marks obtained in 10 units. In addition, students may take an optional eleventh unit during years 1 and 2, for example in Languages, Education, etc. (as described in Section 3.10). Although credits are awarded for these courses and the marks appear on the students' transcripts, the marks obtained do not contribute towards the overall year mark or degree classification. Details of the assessment procedures, including the system of credits and marks, and the rules for progressing from year to year, may be found in Chapter 7 and Appendix A.

3.2 How Units Build Into Programmes

Degree programmes consist of a number of units with a total credit value of 60 taken in each year (http://www.bath.ac.uk/catalogues/2019-2020/ph/ph-proglist-ug.html). In the first and second years all units are compulsory. The final year of the BSc programmes and the penultimate year of the MPhys programmes consist of a combination of compulsory and optional units, as does the final year of the MPhys Physics with Astrophysics programmes. All units within the final year of the MPhys Physics programmes are currently compulsory. Each unit has an associated University code, the first 2 letters of which show which Department delivers the unit. Units given by the Department of Physics have the code PHx****, where x refers to the level of the unit. The grids in Appendix A show the units

which comprise the MPhys and BSc degree programmes described in Chapter 2, indicating the choices available on these different programmes.

3.3 Units Provided By Other Departments

It can be seen from the grids in Appendix A that the Physics and Physics with Astrophysics programmes contain units described as “Director of Studies approved Unit” where students can choose from the full range of units provided across the University. Any such choice must be approved in advance by the Director of Studies and agreed by the Department Learning, Teaching and Quality Committee.

Even if a unit appears in the grids as an option in another named degree programme, it should **not** be assumed that it can be taken as “another approved unit”. Explicit approval must be obtained. The Director of Studies will employ the following guidelines in granting approval for such units:

- You must be able to meet any pre-requisites for the unit. Note that prerequisites might include A-levels not mentioned in the unit description but assumed for all home students in the other department. For example, students on biology units will be assumed to have Biology A level or equivalent;
- The department delivering the unit must agree to you attending their unit;
- There should be little overlap with units that you have taken or will take;
- The unit marks must be available in time for our final year (and Year 3 MPhys) Programmes Board of Examiners; this means that a Level 1 or 2 unit cannot normally be approved in Semester 2 unless it is a Generally Available Unit;
- It must be at an appropriate level. Language units will not be allowed unless they are at an advanced level;
- You will not be permitted to take too many non-mathematical science or engineering units. For example, if you take ED30005 and ED30006, we would not approve an additional non-mathematical science or engineering unit as a DoS-approved unit.
- It must be possible to accommodate the unit within any timetabling constraints. You will not be able to continue with your DoS-approved unit if there is a serious timetable clash. There must also be space for you on the unit; some units have set limits for the number of places available.

Note that “Generally Available Units” are designed so as to satisfy many of the conditions listed above automatically, and one of these is therefore likely to be approved as a Director of Studies approved unit. The current list of Generally Available Units can be found in the

University of Bath Programme and Unit Catalogues web pages at http://www.bath.ac.uk/catalogues/2019-2020/ph/ph-proglist-ug.html.

3.4 Details of Units

A complete listing of all units currently offered by the Department of Physics can be found at http://www.bath.ac.uk/catalogues/2019-2020/ph/PH-units.html. As well as the title and University code these describe the Aims and Learning Objectives of each unit and give an outline of their content. The contents of a unit are the same for all registered students.

Other important information in the Unit Description is how the unit will be assessed. Assessment may take place by means of examination (EX), coursework (CW), laboratory work (PR) or essays (ES). Students should ensure that they know the relative weighting of all forms of assessment for the units that they study, and spend the appropriate amount of time working for these unit marks.

The aims and learning objectives of the units give the broad intent of the course, followed by some typical tasks that students should be able to do when they have studied the unit. This is followed by a listing of the content of the course. The level of detail given can vary from unit to unit, and students should be aware that these descriptions are not prescriptive, but indicative of the content of the course. Lecturers may choose which elements to emphasise or focus on within these guidelines. The only way to know absolutely what you need to know is to attend the lectures and other classes, and participate fully in the course. The content of units build upon previous knowledge, and the requisites listed in the unit description indicate the most important relationships between units. To study a particular unit, students must satisfy the pre-, co- or post-requisites that are listed. If in doubt, you should consult the Director of Studies.

3.5 Lectures, Problems Classes, Laboratories, etc

The majority of units follow a common pattern of teaching and learning, with three one-hour slots being timetabled each week during the 11 week teaching period. Two of these are usually used for whole-class lectures with the third being available for problems classes or other learning and teaching activities. However, individual lecturers may decide to use the slots in a different way, although the total number of whole-class lectures in a 6-credit unit will always be close to 20. You may be expected to learn some of the material within the unit independently, with lecturers providing background material for this. In all cases, lecturers should provide a timetable at the start of the unit showing how the available slots will be used, and indicating which parts of the unit are to be learnt independently. Units with this standard teaching pattern have a two-hour examination in the assessment period at the end of the semester; details are given in Chapter 7.

Lecturers use a variety of formats for lecture delivery, such as “chalk and talk”, overhead transparencies, or PowerPoint presentations. The Department believes that it is beneficial

for students to encounter a variety of teaching methods and lecture formats, and supports the autonomy of lecturers in determining which format they wish to use. You should remember that, although you may hold strong views on which lecture format you prefer personally, student questionnaires regularly show that there is no general consensus among our students on a single "best format" for lecturing. You should also note that lecturers are not under any obligation to provide students with printed lecture notes, and that those lecturers who choose to do so are not obliged to make these notes available to students on the internet.

In the first and second years the slots not used for lectures are usually used for problems classes, based around problems sheets which are handed out in lectures or the problem class. These classes may involve either the whole group registered on the unit or, more usually, half the group. In the course of a unit students will normally be allocated about four problems classes if the class is divided, or eight if it is not. Again, students should be informed well in advance of which classes they should attend. In the final year (or the final two years of the MPhys programmes) the non-lecture slots may be used for problems classes or "office hours", where lecturers are available to help individual students with the course. Approximately eight of the timetabled hours in each unit are usually used for such non-lecture activities.

Some units differ significantly from the standard pattern, including the Experimental Physics and Computing units in Years 1 and 2, Contemporary Physics, the Computational Physics and MPhys Laboratory units, and the BSc and MPhys final year project units. and the BSc final year project units. More information about these units may be found at http://www.bath.ac.uk/catalogues/2019-2020/ph/PH-units.html and in Appendix C, and students are given detailed information concerning the teaching and assessment arrangements at the start of each of these units.

3.6 Timetables

Programme and unit timetable information can be found online at:
http://www.bath.ac.uk/timetable/MyTimetable.htm

You can also use MyTimetable to create a customised programme timetable that can be downloaded into an electronic calendar:
http://www.bath.ac.uk/timetable/MyTimetable.htm

3.7 Expectations

It is a University Regulation that you attend regularly. If you are not able to do so, or will be absent for longer than three days due to ill health, then you must contact your Director of Studies to discuss your situation and an appropriate course of action.

Further information

See Regulation 3: www.bath.ac.uk/publications/regulations-for-students-2018-19/

You are expected to attend lectures, problems classes, tutorials and laboratory classes. Announcements about units, for example, the timetable of lectures and problems classes, changes to this timetable, details of coursework, the structure of the examination etc., are usually made in lectures. It is your responsibility to be aware of any such information provided in lectures and problems classes. In some circumstances you will be informed about changes in a unit by a message on the unit Moodle page, or by emails to your University email account.

As outlined in the previous Sections, you will have around 30 contact hours with the lecturer(s) on a standard 6-credit unit. However, this is far from being your total workload; it is expected that each unit should involve around 120 hours of study. You should be aware that you are expected to spend around 90 hours in private study for each unit in order to learn successfully. The most common cause of poor performance and of academic failure is to fail to take this seriously.

As a guide, private study time should normally consist of background reading, problem solving, report writing, revision etc.; all of which contribute to a student's understanding of the unit. In private study, it is essential that you look through lecture notes, improving their clarity and supplementing them with material from textbooks. This is best done on the day of the lecture, or at the latest the following day. Note down those points that you do not understand properly, and clarify them with the lecturer, your tutor, or with fellow students. You must take the general overview of a lecture and personalise it to enable your learning and understanding of the subject.

You should include study of past examination papers in your private study. These can be obtained from the library loan desk, and are also accessible at www.bath.ac.uk/library/exampapers. However, you will not do well if you just try to memorise answers to past questions without genuine understanding.

Students sometimes find it particularly difficult to manage their time on coursework-assessed units, such as the laboratory and project units, Contemporary Physics, Problem Solving Skills, Computational Physics, and Advanced Problem Solving. There can be a temptation to spend a disproportionate amount of study time on the coursework within these units, in the hope that by investing extra time you can squeeze a few more marks out of the unit. However, this extra time has to come from somewhere, and more often than not it is the study time for your exam-based units that will suffer, with obvious consequences for the marks in these units. We recommend that you decide at the start of each semester how much study time to devote overall (as stated above, this should be around 120 hours per 6 credits), and make sure you stick to this target for all units, including coursework-based ones. This should help you to maximize your overall performance across all assessments.

3.8 Missing Classes Due to Illness

If you are ill for a short period there are a number of actions you should take on your return:

- You should see the lecturers in all lecture courses missed as soon as you return and obtain any missed handouts, including problems sheets;
- You should copy (and study) the lecture notes of someone who was at the missed lectures, preferably before the next scheduled lecture in that subject;
- You should see lecturers in practical, computing etc. classes to ascertain what you should do in these areas about missed sessions;
- Where appropriate, you should follow the guidance listed in the Individual Mitigating Circumstances Section of this handbook.

3.9 Lines of Communication

It is often necessary for students to be contacted or provided with information, sometimes at short notice. It is your responsibility to check daily your University email account, as well as to regularly check the alphabetical pigeon holes just outside Dr Mathlin's office (3W 3.04). Students wishing to contact members of staff can do so by email (see the preface for contact details) or by leaving a message in the Department office (3W 2.03).

You should also make sure that the University is informed of any changes in outside contact details (University and parental address, telephone numbers, including mobile etc.) by keeping your contact details in SAMIS up to date. For example, the mailing of any items to you during vacations will be affected if the information that is held in SAMIS is not correct. Post addressed to individual students c/o The Department of Physics, The University of Bath, Claverton Down, Bath BA2 7AY will be delivered to the pigeon holes in Physics Square. Because of public accessibility, the Department of Physics cannot accept responsibility for the safe delivery of post via the pigeon holes.

The University will often communicate to you a range of important matters including registration, unit-enrolment, assessment, and degree ceremonies, via your University email account. So that you do not miss out on (and as a consequence fail to act on) important information, it is a University regulation that you access your University email account regularly, including if you are out on placement or study abroad. You therefore have a responsibility to ensure that your University email account can receive incoming mail and that you read your email regularly.

3.10 Language and Education Options

Students can opt to take units in Languages or Education in Years 1 and 2, in addition to their standard compulsory Physics units. Although marks obtained on these optional units appear on a student's transcript they do not contribute towards the overall year mark, and so have no effect on a student's progression from year to year.

Further information on studying Languages units can be found at https://www.bath.ac.uk/professional-services/foreign-languages/. Education units are offered as single units in each semester (http://www.bath.ac.uk/catalogues/2019-2020/zz/UXXX-AFN99.html).

3.11 Choice of Programmes and Units, and Changing Between Programmes

At the start of their first year, all students register on one of the degree programmes described in Chapter 2. However, there is a considerable amount of flexibility in the system and students are allowed to change their registration from one degree to another, provided they obtain permission from the Director of Studies and complete the appropriate form. There are, however, a number of important deadlines after which a change of degree programme cannot be made:

- Students who wish to undertake a placement or a study year abroad (whether as part of a BSc or MPhys programme) should register on a relevant programme and inform the respective members of staff as early as possible within their second year (or their penultimate year, in the case of the MPhys research placements).

- Students who wish to change between different named BSc degree programmes must do so within two weeks of the start of their final year.

- Students can transfer from a BSc to an MPhys degree programme during Years 1 and 2, but may only progress or transfer to the penultimate year of an MPhys degree programme if they meet the required standard in their second year examinations. Details are given in the web links referred to in Appendix A.

You will be asked to select your units for the following academic year on-line during April (prior to the start of the Semester 2 exams). By making your choices online this information is fed into the timetabling process, and your choices will assist with setting the timetable for the following year. Once you have made your unit choices, these cannot normally be changed. However you may make a case to your Director of Studies to change your optional unit choices if you think you meet one or more of the following criteria:

- You have changed degree programme and this requires a change of unit;
- You have a timetable clash with a pre-registered unit choice;
- You have not fulfilled the pre-requisite requirements for a pre-registered unit;
- The withdrawal of a unit necessitates a change of a pre-registered unit choice;
- You pre-registered on a unit but the unit was over-subscribed;
- Your Director of Studies has advised you to alter a pre-registered unit choice for academic reasons.

If your Director of Studies allows you to change your unit choices, the deadline for making this change is Wednesday of the first week of teaching.

3.12 Unit and Programme Changes

We continually look for ways to develop and improve our programmes. For example:

- it might be desirable to make some updates to the content of the curriculum to reflect the latest developments in a particular field of study

- a review of the assessments across a programme (including feedback received) might identify that changes to an assessment would better support student learning.

Students who would be affected by proposed changes are consulted about them, either via their Staff/Student Liaison Committee or directly, depending on the nature of the change.

In addition, it is sometimes necessary to make changes due to unforeseen or unavoidable circumstances. For example:

- the accrediting body for a programme may require changes to be made to it

- it may not be possible to run a particular unit because a member of teaching staff with specialist expertise leaves the University and we are unable to find a suitable replacement

- it may not be viable to run a particular optional unit in a given year because very few students select it.

In such cases, the University will always try to ensure that any impact on students is minimised and that students are informed of the changes at the earliest opportunity.

All programme and unit changes are managed through a formal process set out by the University. The aim of this is to ensure that changes are academically appropriate and properly supported, take place in a timely manner, and safeguard the interests of students.

3.13 How Your Programme is Reviewed and Monitored

The University has in place a number of ways to ensure that programmes remain up-to-date, issues are dealt with and improvements made.

All programmes and units are monitored annually, looking at evidence for what is working well and identifying any actions that need to be taken. Taking account of student feedback, including feedback given through unit evaluation and other student surveys, is a key part of unit and programme monitoring.

Departments also conduct periodic reviews of their programmes. These provide an opportunity for in-depth review and development, involving input from students and from an adviser(s) external to the University.

4 Academic and Personal Tutorials

4.1 Tutors and Tutorials

Every student is allocated a Personal and Academic Tutor when they first enter the Department; they will help you to get the best out of your university experience and can guide you to sources of expert help – whether on academic progress or personal/welfare issues – when or as you may need it. The Department values the academic and pastoral roles of tutorials highly; although academic tutorials are not a University requirement, we invest a considerable amount of time and effort into them. Our departmental Senior Tutor (Dr Gary Mathlin) is responsible for allocating tutors, and he explains the operation of the tutorial system to new undergraduates during their induction days, including the procedures for changing tutors if necessary.

Normally you can expect to retain the same personal and academic tutor throughout your undergraduate years at the University. If you should have reason to wish to change your personal and academic tutor, please contact the Senior Tutor to discuss the matter.

The success of tutorials depends on commitment being shown by both tutors and tutees. Tutors meet their first and second year tutorial groups on a weekly basis, although additional meetings can be scheduled on an individual basis if requested by the student. Tutorial groups usually consist of around five students. Tutorials are compulsory in Years 1 and 2, and will normally last for the full 50 minutes allocated. Final year students and penultimate year MPhys students may be allocated a weekly slot for tutorials, to be used at their discretion. You have an obligation to attend every tutorial, or to send apologies in advance if you have to miss a session. Remember that if you do not get to know your tutor, they will be unable to provide you later with a reference for your career. If you fail on several occasions to meet with your tutor as expected, this will be reported to your Director of Studies.

In an SSLC review of our tutorial departmental system, students welcomed our informal tutorial system, whereby students and tutors can tailor the time to meet their individual needs; they did not wish for this to be compromised by tutorials being forced to run with the same structure. The same review found that the majority of students view the tutorial system as very important, for varying reasons. Some viewed it as a way to have ‘silly’ questions answered easily, others as an important personal link to the Physics department or simply a way to meet other Physics students.

4.2 Role of Tutors

The conduct of tutorials is left to individual tutors and their tutees. The strength of the system relies on the development of a good and trusting relationship between tutor and student, and this should not be impaired by intrusive formality. However, tutors have a number of important roles in monitoring the progress of students and assisting them through their course:

- Tutors should provide opportunities for students to query, discuss and develop the material presented in lectures and problems classes. They also support departmental induction and skills development activities, and provide a personal contact and rapport in case of pastoral issues.

- Tutorials should generally be student-led, with any problems/queries being brought up by students and answered by the other students and the tutor. However tutorials will sometimes 'grind to a halt' due to students having no questions. On these occasions the onus is on the tutor to direct the tutorial, for example using one of the suggested activities listed in Section 4.3. There is never a shortage of things to do at tutorials!

- Tutors should provide opportunities for students to discuss current scientific developments, including upcoming public lectures that may be of interest to students, current departmental research and their tutor's area of research. For first and second year students this information can be difficult to come across and scientific language difficult to digest; an informal setting such as a tutorial can therefore be a useful place to discuss these things.

- Marked coursework assignments, laboratory reports, etc are channelled back to students via their tutors. This allows the tutor to gauge their tutee's attendance and performance, enabling tutors to offer appropriate guidance and to have early warning of any problems.

- Tutors read drafts of laboratory reports in Years 1 and 2 if requested, and will advise students in particular of any deficiencies in the structure, presentation, or written English.

- Tutors write references for their tutees, both in the context of finding placements and after graduation. In this regard students should keep their tutors informed of any notable sporting, social or other achievements each year.

- Students who are undertaking a placement will usually be visited at their place of work, often by their tutor. The tutor will also normally read a student's placement report.

- Tutors should familiarise themselves with any factors which may affect their tutees' performance, and ensure that appropriate matters are recorded in the student's file. If students have personal problems of a serious nature the personal tutor may be able to assist them to find appropriate counselling and advice, e.g. through the University Counselling Service, or the Welfare Office of the Students' Union.

- Tutors will monitor their tutees' attendance at tutorials and will notify the Senior Tutor of any issues of concern in relation to individual tutees.

- Tutorials should continue within their standard weekly slot during revision week.

4.3 Suggestions for Activities within Tutorials

The following are suggested activities that staff or students may like to initiate in tutorials. Tutorials should combine pastoral and academic elements, and staff and students should feel free to pick and choose a good variety of activities from the lists below, or to initiate activities not specifically mentioned.

Pastoral

- Tutors should spend part of each tutorial asking their tutees what they have spent their week doing outside of lectures (e.g. how is life generally, whether any problems, accommodation, placement applications etc.). This enables the tutor and tutees to find out more about each other and general university life.

- Once a semester tutors should arrange to see each of their tutees individually for a 10 minute appointment (within one of the regular tutorial slots) to discuss any issues that students might not want to voice in the group. Tutors should ensure that tutees know that they are welcome to request a one-to-one meeting with their tutor at any time if they wish to discuss a personal issue which would not be appropriate to raise in the scheduled weekly tutorials.

Academic activities

- Discussing units/lecture notes and providing help with specific problems.

- Discussing problems sheets, for example with students attempting problems on the board, and the tutor providing help where needed.

- Discussing students' laboratory reports, as well as general report writing tips (eg. what makes a good graph, the meaning of error bars, scientific writing style).

- Exam preparation - discussing the general ingredients of a model answer to an exam question. Tutors might ask students to hand in a written solution to a problem or an exam question, to be discussed within the group or returned with written feedback.

- Providing an overview of current units - trying to give students the 'big picture' of what a unit covers, why it has the structure and content that it does, and its relationship to other units.

- 'Join the dots' - the group 'brain dumps' to the board about a topic. The tutor's role is to help the students to fill in any gaps and make connections, so that the big picture emerges.

Context and department

- Providing an overview on how our programmes fit together, and how certain groups of our units in years 1 and 2 form ‘strands’ that feed into later units.

- General discussion about the types of research taking place in the department, research groups and their staff memberships, including any recent highlights of departmental research. This could include chat about the tutor’s own research and a visit to the tutor’s research lab.

- Discussion about more general scientific developments - tutors might introduce discussion topics on current scientific developments they are aware of (not necessarily related to Physics), might discuss what they have spent their week doing, might provide science research updates from the University or the Department, or might mention upcoming scientific public lectures, and possibly discuss (pre or post lecture) some of the themes and questions arising from it.

Generic skills

- Presentation skills - students could be asked to prepare a 5-10 minute presentation about a topic of interest to them, to be presented to the group from the board.

- General problem solving ability - the tutor might pick a random physics problem from everyday life or from a course text book, for the tutorial group to try to work on together.

- Tutors should be aware of the information and resources on study skills, plagiarism etc. that are provided for students by the University, and should direct students to these resources.

5 Placements

5.1 Overview

Placements have been a major component of our undergraduate programmes at Bath since the foundation of the University. It has been our experience over more than forty years that this period in an external research or development organisation forms a significant part of our students' personal and scientific development and training. A side benefit of the placement programme is that it provides the Department with a direct and continuous link to the activities and needs of potential and actual employers of our graduates; this is hard to achieve in as diverse an employment field as that of physicists by any other means. In addition, the interaction with industry and government laboratories can bring benefits to other areas of the Department's activities, particularly in the development of postgraduate research links.

The University is committed to supporting placements in order to enhance the vocational relevance of its programmes and the learning experience of its students. Each Faculty and the School has a dedicated placements team to support and guide you through the process of applying for, securing and successfully completing a placement. The contact details for your Placements Manager and Placement Tutor can be found in the front of this Handbook.

You can expect to receive placement preparation support on the application process (i.e. CV writing, production of covering letters and applications, interview skills, assessment centres) as well as practical placement support (such as where to find information on visas, accommodation, money etc). For some placements, there is a requirement for a Disclosure and Barring Service (DBS) check and you should liaise with your placements support team for further guidance.

Before going on placement you will receive a University Placement Handbook containing generic advice and information for whilst you are on placement.

You will receive programme specific information directly from your Department via the departmental placement Moodle page. If you are on a placement of one semester or longer in the UK you can normally expect to be visited by staff at least once during your placement. If you are on a placement overseas, staff will either visit, where practical, or arrange an alternative way of keeping in contact.

During the placement you will be expected to complete the Personal Objectives and Learning Outcomes forms (POLO) or equivalent (which helps you to structure your placement objectives and personal development) [and the Goals, Objectives and Learning form (GOLF), where applicable (for assessing your performance against these objectives).]

A re-induction activity will be conducted to welcome you back from placement and update you on any changes that may have occurred at the University during your time away.

Further information

University Placement Handbook and other information for placement students:

http://go.bath.ac.uk/placements-information-for-students

5.2 Professional Placements (unit PH20040)

All students have the option to spend a year of their BSc or MPhys degree programme working on a professional placement in a research establishment or in industry. Students become a member of professional teams within their placement organisation; many opportunities exist to acquire specialised skills that can be put to good use during the final academic year, besides providing students with greater confidence, experience and maturity when applying for graduate employment. A number of students choose to explore opportunities outside science and engineering – particularly in the financial and management consultancy fields where problem solving, mathematical and reporting skills are sought after.

5.3 MPhys Research Placements (unit PH40082)

MPhys students who choose the research placement option (either in addition to, or instead of, a professional placement) spend six months from July to December of their final year working on a high level Physics research project in an external organisation, before returning to the University for the final semester of their degree. The research placement replaces the on-campus full-semester research project undertaken by full time MPhys students, and is assessed in the same way as these projects.

5.4 Obtaining a Placement

Placements are arranged during the second year (for professional placements) or the penultimate year (for MPhys research placements). As discussed previously, students wishing to undertake a placement must therefore be registered on a relevant degree programme as early as possible; by the beginning of year 2 for professional placements, and by the beginning of the penultimate year for MPhys research placements. Placements are coordinated by the Placement Tutor and the Faculty Placements Manager, who liaise with students and prospective employers in the placing of students, and are responsible for monitoring and supporting students while on placement. While the Placement Tutor and the Faculty Placements Manager will make reasonable efforts to help and advise every student who wishes to undertake a placement to secure a suitable position, it is made clear to students at the start of the process that the availability of placements cannot be guaranteed. The probability of securing a placement and the type of work carried out during

the placement are mainly dependent on a student's academic performance to date, and there may be additional external factors outside the control of either the student or the University.

The Department maintains a portfolio of potential placement providers in the UK and in several countries abroad. A dedicated Moodle course is used to advertise placements and store useful information such as how the placement scheme works, where students have been before and what they worked on. The student selects a range of possible employers, with the advice of the Placement Tutor and/or the Faculty Placements Manager, and usually applies directly, usually via a web site or application form in response to an advertised opportunity. In a minority of cases, the Placement Tutor and/or the Faculty Placements Officer may submit a curriculum vitae to personal contacts within an organisation for positions which are not generally advertised. Students are encouraged to make enquiries of their own and to use family and other contacts. However, the Placement Tutor and/or the Faculty Placements Manager must be consulted before accepting a placement, in order to ensure the professional level of the placement, that adequate supervision, safety and insurance measures are in place, and that the employer understands the University's requirements. All placements involve a competitive interview. The long track record of our degree programmes, the high quality of Bath students, and the dedication of our Placement Tutors and Placements Officers have all played their part in enabling Bath students to be placed in high-quality environments, despite a considerable increase in the competition for places from other institutions.

5.5 Support while on Placement

Before leaving the University to embark on the placement, students attend a briefing session with the Placement Tutor and/or the Faculty Placements Manager, when the University requirements for the placement and the expectations of a commercial employer are stressed. At the same time, the Student Money Service explains how the placement period works with regard to tax, council tax, loan, insurance etc. The main points of contact with the University while on placement are the Placement Tutor, the Faculty Placements Officer and the student's Personal Tutor. Students are encouraged to keep in contact via e-mail or telephone.

During the placement students will complete an initial Personal Objectives and Learning Outcome (POLO1) form; this is the case for both professional and MPhys research placements. This initial POLO form is intended to help students to start planning their personal development over the course of the placement. After completing six months on placement, students undertaking a professional placement will revisit their personal objectives and reflect on what has been achieved so far. Further objectives will be set to help ensure that students are able to fulfil their full potential by the end of the placement year. At the end of the placement all students complete a final POLO form that allows reflection on their achievements and development. The POLO forms are submitted to the

Placements Moodle course during the year, and are included in the appendix of the Placement Report written at the end of the placement.

Every three months, students ask their placement supervisor/manager to complete a Goals Objectives and Learning Form (GOLF). This provides students with direct feedback on their progress, and informs the objectives set for the following three months. These reports are also uploaded to the Placements Moodle course.

Students are visited by a member of staff during their placement, who discusses the student's POLO1 form with the student, and their progress and performance with their supervisor/manager.

5.6 Assessment of Professional Placements

A Placement Conference is held at the end of the professional placement year, during which students are required to give a poster presentation on their work. They also submit a written report on their professional placement year. Although the professional placement year does not contribute towards the degree classification awarded, satisfactory performance is recorded on the student's transcript. Further Information on the assessment of professional placements may be found in Appendix C.

5.7 Assessment of MPhys Research Placements

MPhys Research Placements are assessed in the same way as MPhys Research Projects, and carry the same weighting within a student's Overall Programme Average. An MPhys Conference is held during the semester 1 assessment period, at which all MPhys students give an oral presentation on the work they carried out for their research project or placement. Students also submit a written report on their research placement, and undertake a viva voce examination. Further Information on the assessment of MPhys Research Placements may be found in Appendix C.

6 Study and Support: Getting the most out of your studies

6.1 Accessing University Email

You will need to use your University username and password to access your University email account. You are able to access your email by going to http://outlook.office.com/

Your username also forms your email address (username@bath.ac.uk).

The University will often communicate with you about a range of important matters requiring action from you, including registration, unit enrolment, assessment, degree ceremonies, and matters such as tuition fees, via your University email account. It is a University requirement (Regulation 1.3) that you access your University email account regularly, even if you are out on placement or study abroad.

You therefore have a responsibility to ensure that your University email account can receive incoming mail and that you read your email regularly.

Once you graduate or withdraw from your course, you will receive an email stating exactly when your account will be closed. The email will give at least 30 days' notice.

Further information

Email guidance: www.bath.ac.uk/guides/accessing-your-university-email-and-calendar

Regulation 1.3: www.bath.ac.uk/publications/regulations-for-students

6.2 Your Student Record: SAMIS

SAMIS is the University's student records database. It provides an online portal where you can view details about your registration, update your contact details, and do other things such as viewing exam information, viewing your confirmed assessment results, and (where applicable) choosing optional units.

Further information

https://samis.bath.ac.uk

6.3 Moodle

Moodle is the Virtual Learning Environment (VLE) used at the University of Bath. It is used by academic Departments to support learning and teaching at programme and unit level. It provides a platform for the delivery of resources and online activities, and can also support student interaction and collaboration.

Further information

https://moodle.bath.ac.uk/enrol/index.php?id=2329

6.4 Personal Tutoring

When you join the University, you will be assigned a Personal Tutor who will help you to get the best out of your university experience. Your Personal Tutor will:

- support you in your academic progress and personal development
- discuss with you programme choices, placement opportunities and future career plans
- provide you with a reference for your placement or career
- guide you to sources of expert help with any personal/welfare issues.

Your Personal Tutor should arrange to meet with you on at least three occasions in your first semester and at least once per semester thereafter. This enables you both to get to know each other, such that you can raise any issues with your tutor and your tutor can support you fully through your programme. It is important that you attend scheduled meetings with your Personal Tutor and let them know in advance if you cannot attend. Many of these meetings may be in small groups but you can also request a one-to-one meeting.

If you should have reason to wish to change your Personal Tutor, please contact your Director of Studies to discuss the matter.

6.5 Language and Academic Skills Support and Development

To help you get the best out of your studies and your future employability, we offer all our students a comprehensive range of year-round skills and personal development opportunities designed to complement your academic programme.

These opportunities have been designed to give you choice and flexibility to help you get the support and development you need at the time you most need it.

You can choose from classes, tutorials, drop-in sessions, workshops and online resources, to develop a range of skills, including how to:

- create well-written, clearly structured essays, reports and dissertations
- think critically in order to enhance your writing
- manage information sources and literature effectively
- give polished and effective academic presentations
- manage and analyse numbers, data and statistics

- enhance your use of mathematical tools
- use IT tools and resources effectively
- enhance your existing language proficiency, or learn a new language.

There are many opportunities available to you through our Careers Service and Students' Union to help you develop your skills and prepare for the workplace. For example:

- writing an effective job application and CV
- succeeding at interview or assessment centre
- leading and managing projects
- chairing meetings
- running a club or society.

Further information

Find out more about the skills support and development opportunities available here: http://go.bath.ac.uk/skills

6.6 Recognition for Extra-Curricular Activities: The Bath Award

The Bath Award is open to all undergraduate and postgraduate students. It recognises the experiences, skills and strengths you have gained through participation in extra-curricular activities, volunteering, work experience, part-time work, global opportunities and more. The Award enables you to reflect on your personal development as a student and future employee. Completing the Award will enhance your employability, increase self-awareness of your skills and enable you to articulate these effectively to future employers.

Further information

https://www.thesubath.com/bathaward/

6.7 The Library

The Library is open 24 hours a day, all year round, and provides print and electronic materials and information services to support study and research across the University. It houses over 500 PCs, wireless networking throughout, and provides areas for both quiet individual study and group work. Alongside 360,000 printed books, it offers over 26,000 electronic journals, 516,000 electronic books, 100 databases for information, literature and data searching, the University's exam papers database, and digital versions of the University's academic publications. The Library's electronic services, resources and support materials are all available directly from the Library's web pages (https://library.bath.ac.uk/home).The Library's copy and print service provides access to black and white and colour photocopying, laser printing and scanning.

Information specialists, our Subject, School and Faculty Librarians are responsible for services to individual Departments and the School. You will find their contact details, and subject specific guidance on the dedicated web pages they have created. These pages include a large range of recommended resources and support materials and are listed under 'Resources for your Subject' on the Library homepage (https://library.bath.ac.uk/home).

Our Subject, School and Faculty Librarians provide individual help to students and staff, as well as teaching information skills in Department and School programmes and through general University skills provision. All new students receive library introduction sessions during the induction period.

Further information
This Department's library resources page is:
[www.bath.ac.uk/library/subjects/physics/index.html]
For information on all library services and resources: www.bath.ac.uk/library

6.8 Computing Services and Facilities

Using your University username and password, you will be able connect to University computers, University email, the internet, file storage and printing services. You will also be able to get access to a range of free software, including Office 365 and antivirus. You can work from any location using our UniDesk and UniApps service, which gives you access to your files as if you were on campus.

If you would like to know more about these services, and how to access them, please visit: http://www.bath.ac.uk/campaigns/setting-up-your-it-as-a-student/

IT Support is available from the IT Service Desk on Level 2 of the Library or online at: https://www.bath.ac.uk/guides/getting-it-support-and-advice/

If you require learning assistance, Computing Services can support you with your computing needs. The Assistive Technology Team is available to provide advice and support. Additional resources are available, which include the Assistive Technology room, specialist software and computer hardware - including laptops for loan. Find out more at https://www.bath.ac.uk/professional-services/assistive-technology/

The IT shop in the Library stocks popular products such as academic software, DVDs, network cables and headsets. You can order many further IT products through the shop. Prices are often lower than in high street shops.

The Audio-Visual Unit also provides a range of equipment and facilities that can be used in support of learning. Find out more at https://www.bath.ac.uk/professional-services/audio-visual/

Within the 3West building the Department of Physics has additional computing facilities available to students, both in the undergraduate laboratories and in the student workrooms, adjacent to the Physics Square and on level 4.

Further information

Computing Services: www.bath.ac.uk/professional-services/computing-services

Information for new users: http://go.bath.ac.uk/it-new-students

Information for users requiring learning assistance: www.bath.ac.uk/professional-services/assistive-technology

IT shop: www.bath.ac.uk/locations/it-shop

Computing Services Twitter feed: @UniofBathIT

6.9 Recording of Lectures

'Lecture capture' technology is widely used on campus to record lectures. Lecturers on your units will inform you if lectures will be recorded and the recordings made available for you to view again online. Where provided, lecture recordings are made available as an additional resource for personal study and revision purposes, and you can pause and rewind recordings when you re-watch them. The University cannot guarantee recordings (for example in the event of a technical fault) and recordings are not made available indefinitely.

As set out in Ordinance 22.4, students are not permitted to copy or redistribute lecture recordings, or to make their own recordings of lectures. However, the University may permit students with a disability to record lectures where this is a reasonable adjustment under the provisions of the Equality Act, in order to give these students equal access to educational opportunities. In such circumstances, the lecturer will be informed that the lecture is being recorded and the student may use the recording for their own personal study purposes only. Students with a disability should contact the Disability Service for further advice.

Further information

Ordinance 22: https://www.bath.ac.uk/corporate-information/ordinances/

Disability Service: https://www.bath.ac.uk/professional-services/disability-service/

6.10 Student Representation

Feeding back your views to the University

The University is committed to reviewing and continually improving its practice. The University aims to engage students as active partners in their education (Education Strategy 2016/21). Three key ways in which we seek feedback are through:

a) Staff / Student Liaison Committees (SSLCs)
b) Surveys and evaluations
c) The Students' Union.

We also use focus groups, Departmental working parties, 'Lets' Talk' events, in-class opportunities and various kinds of feedback sessions.

You can get actively involved in determining how your educational and student experiences are organised by becoming active in the Students' Union, by letting your Department know that you are interested in contributing, and by working in partnership with staff in your academic department and across other services at the University to co-creation solutions to improve the learning and teaching, and wider student experience.

On top of the informal mechanisms like talking with your Unit Convenor and your Director of Studies, every Department has a formal system so that all students can comment routinely, in confidence and anonymously on the learning experience they have received. Such comments help us to check that:

- you have a clear idea of the aims and requirements of each unit you study
- our teaching is effective and stimulating
- the advice and feedback we provide on your work is helpful
- our resources are suitable.

You will be asked to complete a short online unit evaluation for units you have studied. You will also be asked to complete surveys from time to time on your experience of the programme as a whole. Please complete each evaluation fully, thoughtfully, and candidly. In particular, please tell us not only your opinion but also the *reasons* behind your opinion.

When we receive responses to evaluations, we analyse them – especially the positive suggestions for change and concerns that are voiced. 'We' doesn't just mean the University but students and their elected representatives too! Evaluation and survey data are always encouraged to be looked at in partnership between students and staff, so that solutions to the issues raised can be co-created together. Student feedback and the resulting actions are taken into consideration in annual monitoring of units and programmes. Survey results are

discussed at committees where student representatives have the opportunity to input into any action plans developed in response to the issues raised.

Your feedback is important to both the University and the Students' Union. Please keep telling us what is going well and what needs to get better. Try not to store issues up for a future SSLC meeting or the Unit Evaluations. Talking early to your Unit Convenor and Director of Studies will mean that any potential issues can be solved sooner thus enhancing your own experience on a particular Unit. We will communicate how feedback on units and programmes, and the wider student experience, has been acted upon.

Student Representatives

As a student of the University, you are automatically a member of the Students' Union (although you have a right to opt out - see section below on **Students' Union membership**). Officers of the Students' Union represent students' interests on University decision-making bodies. In addition, numerous elected student representatives play important roles on various Departmental, Faculty/School and University committees. All student representatives are elected through online elections facilitated by the Students' Union.

There are many opportunities for elected student representatives. If you are elected to serve on Departmental, Faculty/School or University committees you will be expected to represent the views of your fellow students and provide feedback following meetings.

Departmental level:	Each Department has at least one Departmental Staff / Student Liaison Committee (SSLC). These comprise of several elected student members, known as Academic Reps, and an equal or smaller number of staff members. Academic Reps are elected at the beginning of every academic year through online elections. Their role involves collecting the views of the students on their programme and attending SSLCs where they represent these views to their Department. The Students' Union reviews minutes from SSLCs and other committees, meetings, forums and student insight and uses this to present a summary report for the University highlighting issues, which need to be addressed. There is also provision for student membership of the Department Learning, Teaching and Quality Committee: normally one undergraduate and one postgraduate (taught) representative.

	Academic Reps attend Students' Union meetings. These take place regularly during the academic year in order to: • keep Students' Union Officers and fellow Academic Reps informed of academic developments throughout the University • discuss common problems and interests affecting Departments • gather student opinions and views to be used by the University and the Students' Union • update Academic Reps on key issues. Do contact your student Academic Reps at any time to inform them of good practice or areas for enhancement in your units and programme.This is normally the person who represents your year or *degree scheme on the Departmental* SSLC.
Faculty/ School level:	Student representatives are also elected as Faculty Reps to sit on a number of Faculty/School level committees such as the Faculty/School Board of Studies and the Faculty/School Learning, Teaching and Quality Committee. Faculty Reps are also members of the Students' Union Academic Exec Committee.
University level:	University committees with student representation include the Council/Senate/Students' Union, the University Learning, Teaching and Quality Committee, the Courses and Partnerships Approval Committee, and Senate.

If you are interested in opportunities to represent student views, please contact the Students' Union: academicreps@bath.ac.uk

The Students' Union, with support from the University, runs a full training programme for student representatives, which includes initial training at the beginning of the academic year and ongoing support and development opportunities.

If you need to raise a concern, remember there are various routes open to you. You can discuss issues directly with a lecturer, your Personal Tutor, or the Director of Studies. Individual problems are often more readily resolved in this way. The Students' Union Advice and Support Service, described below, also provides students with information and confidential advice.

Further information

Your SSLC:
https://auth.bath.ac.uk/login?service=http%3A%2F%2Fmoodle.bath.ac.uk%2Flogin%2Findex.php

Students' Union Academic Representation including contact details for Academic Reps: https://www.thesubath.com/academicreps/

Election of Academic Reps: thesubath.com/elections

Student Engagement: shape your University: https://www.bath.ac.uk/campaigns/student-engagement-shape-your-university/

Outline election procedures are included in QA48 Student Engagement with Quality Assurance and Enhancement, Annex A: Staff/Student Liaison Committees: https://www.bath.ac.uk/publications/qa48-student-engagement-with-quality-assurance-and-enhancement/

6.11 Students' Union Membership

All students registered with the University are automatically given membership of the Students' Union; however you have the right not to be a member. For further information on opting out of this membership, please go to the Code of Practice for the Students' Union: www.bath.ac.uk/university-secretary/guidance-policies/codeofpracticebusu.html

6.12 Student Support

Most students find there are occasions when it can help to talk to someone about a personal problem or issue. In many cases your Personal Tutor, Director of Studies, or a Wellbeing Adviser (see the **Wellbeing Service** section below) will be able to help. However, sometimes more specialist help is needed. The University has a range of professional support services that you can approach directly. Your two main contact points are Student Services at the Roper Centre in 4 West and the Advice and Support Service in the Students' Union.

Student Services

Student Services can provide advice and support on a range of issues including:

- counselling and mental health
- disability issues
- money and funding
- wellbeing and welfare.

You can make an individual appointment or just pop in to our daily drop-in sessions.
Student Services can also provide letters confirming student status for a variety of purposes, which can be requested by logging on to SAMIS: www.bath.ac.uk/services/register-as-a-student-of-the-university-and-update-your-details

The Roper Student Services Centre in 4 West is open from 9.30am to 4.30pm throughout the year (tel: 01225 383838). Services are also available from the Virgil Building in Bath city centre.

For the full range of Student Services, see: http://go.bath.ac.uk/student-services or email: studentservices@bath.ac.uk

The Students' Union Advice and Support Service

The Students' Union Advice and Support Service provides information and advice for students on a range of topics affecting their education and wellbeing. This includes academic issues such as Individual Mitigating Circumstances (see the section in this Handbook on **Assessment**), changing course or assessment offences. They also provide Housing Advice on topics such as contract checks, landlord issues and council tax.

In addition, The SU Advice & Support team is one of the four departments at University of Bath that students can report Harassment, Discrimination or Bullying incidents to as part of the #NeverOK Report & Support campaign.

The Students' Union Advice and Support Service is open Monday to Friday 9.00am to 5.00pm in term time (from 10.00am on Fridays) and 10.00am to 4.00pm during vacations (tel: 01225 386906, email: suadvice@bath.ac.uk)

The Advice and Support Service also supports the SU Diversity and Support groups – details of which can be found at: thesubath.com/diversity-support

For the full range of services see: thesubath.com/advice

Further information

A guide to the wide variety of support and information available to students can be found at: www.bath.ac.uk/students and the Students' Union website: thesubath.com

6.13 Wellbeing Service

The University's professionally qualified Wellbeing Advisers provide a welfare and wellbeing service to all our students. You can talk to a Wellbeing Adviser about anything and we are also available evenings and weekends.

We hold daily drop-in sessions on campus, including weekends and University vacations. Drop-in sessions are also held at the Virgil Building in Bath city centre and we run activities over Christmas and Easter for students who remain in Bath.

Further information

http://go.bath.ac.uk/wellbeing-service

6.14 Advice for International Students

The Student Immigration Service provides immigration advice and support for all international students, including a Tier 4 extension service if you need to extend your visa. The Service offers workshops, a daily drop-in service, advice via email, phone and web-based platforms, or individual appointments can be made through the Helpdesk in The Roper Student Services Centre, 4 West.

Further information

www.bath.ac.uk/topics/visas

Student Services organise University-wide induction and welcome events in September. Events are also organised for incoming exchange students at the start of each semester.

Further information

www.bath.ac.uk/campaigns/studying-at-bath-as-an-erasmus-exchange-or-visiting-student

For students who join outside of the standard semester dates, induction and welcome events are organised by the relevant Department.

6.15 Dealing with a Problem Involving the University

We want to ensure that, if you have a problem concerning the University, it is resolved as quickly as possible. As described above, there are student representatives on all formal decision-making committees – at Departmental, Faculty/School and University level. Student representatives help to anticipate potential problems and, when problems occur, to raise them so that they can be dealt with promptly. As a result we can often resolve problems *before* they get to the stage where a formal complaint might be necessary.

The Students' Union offers advice for students on a range of issues through its Advice and Support Service. Its advice is independent of the University. See the section above on **Student Support.**

Complaints

If you do need to make a complaint, there are procedures in place to deal with it, outlined in the University's Student Complaints Procedure (see below).

These procedures are designed to ensure that your complaint will be dealt with in good faith and that you will not be penalised for complaining. When we receive a complaint, we will first seek to deal with it through informal discussion. If this fails to resolve the issue at hand, you can raise the complaint formally.

There are separate procedures for requesting a review of progression or award classification decisions. See the section in this Handbook on **Procedures for Academic Appeals**.

Further information
Student Complaints: www.bath.ac.uk/guides/student-complaints-procedure

Bullying, Harassment and Victimisation

We believe that all our students and employees are entitled to be treated with dignity and respect and to be free from discrimination, victimisation, bullying, or any form of harassment. This is set out in the University's policy, Dignity and Respect for Students and Staff of the University of Bath: Policy and Procedure for Dealing with Complaints (below). This policy and procedure applies to all staff, students and third parties (e.g. contractors to the University). University of Bath launched an online Report and Support tool, where all staff, students, and visitors can report discrimination, misconduct, harassment or assault by using this tool. You can report anonymously or get support from an adviser.

Further information
Dignity and Respect Policy:
www.bath.ac.uk/equalities/policiesandpractices/dignityandrespectpolicy.pdf
Report and Support tool:
https://www.bath.ac.uk/campaigns/report-and-support/

6.16 Advice for Students with Disabilities, Long-Term Illness, and Specific Learning Difficulties

If you have a disability and/or specific learning difficulty (such as dyslexia), we strongly advise you to speak to the Disability Service team, your Personal Tutor or Director of Studies as soon as possible and preferably before your programme begins. Referral to the Disability Service will enable us to assess your needs and make arrangements to support you.

Any personal information you give when disclosing your disability will be treated in confidence and made available *only* to relevant members of staff and only *with your permission*. If you don't disclose your disability it may be difficult for the University to provide suitable support to help you during your studies. Disclosure will not disadvantage you in any way.

The Disability Service provides advice, guidance, information and support for a range of needs including:

- Autism Spectrum Disorders/Asperger's Syndrome
- dyslexia and other specific learning difficulties
- mental health
- mobility impairments
- sensory impairments

- health conditions such as epilepsy, HIV, diabetes or chronic fatigue.

A screening process is available if you think you may have a specific learning difficulty/dyslexia.

Disability Advisers are also responsible for making applications for alternative arrangements for exams and assessments. Therefore, if you think that, because of a disability, you need alternative exam arrangements (such as extra time or the use of a computer) please discuss this with a Disability Adviser without delay.

Further information

http://go.bath.ac.uk/disability-service

6.17 Pregnancy and Maternity

The University is committed to being as flexible as possible in supporting students who become pregnant, decide to terminate a pregnancy or have a very young child. You are not under any obligation to inform the University of these circumstances, but doing so will enable us to put in place arrangements that will assist you in undertaking your programme of study.

You can seek advice, guidance and support via your Director of Studies, Personal Tutor and the University's Student Services.

Further information

www.bath.ac.uk/guides/getting-advice-if-you-are-pregnant-while-studying-or-have-a-young-child

6.18 Care Leavers, Estranged Students, Refugees and Young Adult Carers

The University is committed to supporting students from a wide range of backgrounds and circumstances including those who are care leavers, from a Foyer or are estranged from their family. We are aware of the challenges students may face when starting university and we want you to get the best out of your programme and university experience. We are able to offer you advice and guidance about settling in, academic studies, funding, accommodation, wellbeing and careers. The service we provide is confidential and entirely optional in relation to the level of support you feel that you may need.

We also offer eligible undergraduate students a non-repayable bursary of £1,000 per academic year plus £1,000 to help with start-up costs and a further £1,000 on graduation – a maximum of £7,000 over a 5-year programme including placement.

Further information

https://www.bath.ac.uk/guides/additional-support-and-funding-for-care-leavers-foyer-residents-and-estranged-students/

6.19 Equality, Diversity and Inclusion

The University of Bath is fully committed to fostering an inclusive and supportive working and learning environment, where difference is celebrated and seen as a strength and where all members of the University community (including students, staff, visitors and third parties) have mutual respect for each other. Instances of bullying, harassment and discrimination hinder the development of such an environment and negatively impact on the individual's self-worth and wellbeing, as well as on our wider community. At University of Bath, we value, promote and celebrate inclusion, challenging discrimination and putting equality, diversity and belonging at the heart of everything we do.

Further information

There is a range of information and resources available at https://www.bath.ac.uk/professional-services/equality-diversity-and-inclusion/ or email: equalsdiv@bath.ac.uk

Protected Groups

There are nine protected characteristics identified in the Equality Act 2010: https://www.bath.ac.uk/guides/protected-groups/

Resources

Equality and Diversity Policies, Practices and resources can be found on this page: https://www.bath.ac.uk/corporate-information/equality-and-diversity-policies-practices-and-resources/

6.20 Careers Service

The University Careers Service can support you through the career planning process, whatever your career aspirations. In addition to providing support with developing your employability, and guidance on how to make informed career decisions, members of the Careers team will provide help with perfecting your CV, practising aptitude tests, and improving your interview skills. Being in regular contact with several hundred major employers, the Careers Service is also a fantastic source for internship and graduate job vacancies for Bath students, as well as the organiser of several major careers fairs each year.

Further information

The Careers Service is open throughout the year, including the vacations.

Check the web site for opening times: www.bath.ac.uk/students/careers

The web site includes the *Myfuture* vacancies portal.

Contact careers@bath.ac.uk or 01225 386009 or follow the Careers Service on Twitter @CareersatBath or Facebook (search for BathUniCareers).

7 Assessment

7.1 Assessment of Physics Units

The majority of Physics units (i.e. those which follow the standard teaching pattern described in Chapter 3) are assessed in the same way. There is a two hour examination in the assessment period at the end of the semester, which carries 100% of the marks for the unit. Standard units also contain coursework, although in most cases this does not contribute to the unit mark; details of this are given in Section 7.3.

The following units do not fit the standard pattern of teaching and assessment:

PH10102	Experimental Physics and Computing 1
PH20105	Experimental Physics and Computing 2
PH20040	Professional Placement
PH20042	Study Year Abroad
PH30024	Contemporary Physics
PH30036	Final Year Project
PH30089	MPhys Laboratory
PH30043	MPhys Year Abroad
PH30055/56	Computational Physics A/B
PH30072	Problem-solving Skills
PH30080	MPhys Project/Placement Preparation
PH30096	Industry Team Project
PH30099	Communicating Physics Project
PH40081/82	MPhys Research Project/Placement
PH40083	Advanced Problem Solving

Details of the assessment procedures for these units are given in Appendix C.

7.2 Examinations

Standard Physics units have a two hour examination which usually has one of the following three structures:

- Students answer all questions on the exam paper.
- Students choose 3 from 4 questions. Each question is of 40 minutes duration.
- The examination has two Sections, A and B. In Section A, students answer all of a set of short questions (typically 6 to 8) in 40 minutes. In Section B students choose 2 from 3 questions, each of which is of 40 minutes duration.

The lecturer(s) teaching a unit should inform students of the examination structure well before the examination. The examinations for almost all standard lectured units during Years 1 and 2 (as well as for some final year units) will follow the first of these structures, i.e. all examination questions are compulsory. All examinations are closed book, but students are

provided with Tables of Physical Constants and a book of Mathematical Formulae, together with any other material that is required for a particular examination. Students are only permitted to use a basic scientific calculator provided by the University.

7.3 Coursework and its Assessment

Continuous assessment within most standard Physics units is “formative”, i.e. it does not contribute towards the unit mark. Formative coursework enables students to gain feedback on their knowledge and understanding, and hence to improve their performance. It also encourages students to keep up to date with lectures and problems sheets, enables approaches to learning that develop understanding of the subject, and provides lecturers and personal tutors with immediate feedback on students’ progress.

Unit lecturers should inform students of the formative assessment method(s) that they will use at the beginning of each unit. These might include “spot tests” or other informal testing in lectures and problems classes, and written assignments, such as past examination questions, questions from problem sheets or essays. Students should also be informed of the schedule for setting and submission of coursework assignments.

7.4 Guidelines for Students About Sitting Examinations

If you feel unwell shortly before taking an examination, you are advised to go to the Medical Centre as soon as possible. In almost all circumstances students are encouraged to sit their examinations as scheduled, even if this involves special arrangements being made. The Director of Studies is the only member of staff who can give a student definitive advice as to whether or not to sit an examination in these circumstances. If the Director of Studies is not available then advice can be sought from the Director of Teaching and Resources, the Head of Department or from a personal tutor.

You should only request a Medical Certificate for serious illness or at times when examinations or pieces of assessed work are compromised by ill health. Medical Certificates are normally only issued after an illness of more than five working days. You should note that it is very difficult to obtain retrospective Medical Certificates and that doctors cannot be asked to provide a Medical Certificate for any illness about which they have not been consulted.

Students should always bear in mind that they are ultimately responsible for the actions they take, or do not take, if they are unfortunate enough to be ill around assessment time.

7.5 Marks and Credits

The unit pass mark is 40%. As well as marks, units also carry credits, as can be seen in the unit descriptions at http://www.bath.ac.uk/catalogues/2019-2020/ph/ph-proglist-ug.html. The majority of units are worth 6 credits, but some are worth more (for example,

the 12-credit laboratory units in Years 1 and 2, and the full-year 60-credit professional placement unit), and some are worth less (for example, the 3-credit optional final year units). Students have to take units totalling 60 credits each year, with 30 credits in each semester.

7.6 Prizes and Awards

The Department of Physics awards prizes to students who perform particularly well in various categories. These are:

- The Patrick Squire Prize, awarded for best performance in the First Year Laboratory;
- The David Bullett Prize, awarded for best performance in the Second Year; The Ayliffe Prize, awarded for best performance in the Final Year.

The Chancellor's Prize is awarded to the best final year undergraduate student across the University. Nominees should have demonstrated academic excellence together with a contribution to the life, academic reputations and general work of the University. Students are invited (and encouraged) to nominate themselves or a fellow student for this award. Two BP Centurion Awards are also awarded to final year undergraduate students in the Faculty of Science on the basis of academic excellence and contributions to the life, reputation and work of the University and community.

There are also University of Bath Teaching Awards, which encourage and recognise significant contributions by staff to the academic lives of students. The Innovation in Learning and Teaching Award is intended for a member of staff who makes a significant contribution to innovation in curriculum design, content or delivery. The John Willis Award recognises accomplishment in research combined with a significant contribution to teaching, including pastoral support for students. The Mary Tasker Award recognises excellence in teaching in the University. The Leadership in Learning and Teaching Award recognises exceptional examples of leadership in learning and teaching. Students are invited (and encouraged) to nominate any of their lecturers for these awards.

7.7 Feedback to Students on Assessment

During your programme, you will receive feedback on assessed work. Feedback on assessments may take different forms, depending on your subject and the type of assessment. You will be informed of the timing and nature of the feedback you will receive on each assessment, including whether the piece of work itself will be returned to you. For formal written examinations, you may receive general feedback relevant to all who sat the exam rather than individual feedback. You can discuss feedback you receive on assessments alongside your performance and progress in your studies at meetings with your Personal Tutor.

Department of Physics Feedback on Assessed Work Policy

Feedback on assessed work is an integral part of the assessment process. The purpose of feedback is to help you to better understand your strengths and weaknesses, so that you can further improve your learning. The feedback you receive should enable you to evaluate the quality of your work, to compare your performance with the ideal, to build on your successes, to reflect on your learning, and to understand what action you need to take to correct your mistakes and misunderstandings.

You will receive feedback on your work and progress throughout the academic year in a number of different ways. Feedback can be formal or informal, written or verbal, and may be provided individually or to a group, for example to the whole class. The nature and amount of feedback that is given will vary, depending on the nature of the unit and the type of assessment involved.

Feedback on formative assessments (i.e. assessments that do not contribute towards the unit mark) is more likely to be informal and oral. As an example, day to day interactions with staff and students in problems classes, laboratories and tutorials will provide you with regular feedback on your progress and enable you to clarify particular concerns. The feedback that you gain on formative assessments such as mock exams can be usefully thought of as “feed-forward”: since it is provided before the main summative assessment, it enables you to ascertain and reflect upon your current level of knowledge and understanding, and hence to improve your future performance.

Feedback on summative assessment (i.e. assessments that do contribute towards the unit mark) will include the marks that you obtain for that item of assessment, and may also include individual or group feedback in a written or verbal form. Some units use pro-forma feedback sheets, which may include tick-boxes or lists of feedback statements that may be highlighted by the lecturer as appropriate. These feedback sheets may include detailed assessment criteria, and may be combined with individual written or verbal feedback. Continuing students receive general feedback on exams by means of a report written by the unit lecturers, summarising performance on each question, and these reports may be found on the Moodle course page for your student year group.

Students are also offered the opportunity to view their marked examination scripts after each semester, in the presence of their Director of Studies or another member of staff. You should note that this process is solely for the purpose of receiving general feedback on your exam performance, and that no remarking will take place. You are also advised that lecturers do not write many comments on exam scripts when they mark them, and that most comments written on exam scripts will be directed towards the other members of staff (and the External Examiner in the case of 2nd, 3rd and final year units) who check the marking on the script, to explain how marks have been arrived at. The feedback that you can gain from this process is therefore more likely to be “big picture”, rather than being necessarily particularly detailed. For example, you are unlikely to be able to use this opportunity to gain detailed feedback on why you obtained a particular number of marks for a particular

question, but this process may help you to learn whether you are providing an appropriate amount of detail in bookwork questions, or whether there are issues in the way you set out your mathematical working.

You are provided with feedback on your level of achievement in each of the units studied during an academic year by viewing your unit results on SAMIS. In addition to feedback on individual units, you will also periodically receive more general feedback on your overall progress. This feedback is provided in the form of credit-weighted averages displayed on SAMIS and by your transcript, which provides a formal record of your performance. You also have the opportunity to request a discussion of your general progress with your tutor or the Director of Studies. The Director of Studies will particularly wish to hold such discussions with students who appear to be "at risk".

Responsibilities of Physics Staff with Regard to Feedback:

- Within their role as unit lecturers:

  i. to inform students of the methods of assessment and feedback that will be used within the unit at the beginning of each unit;

  ii. to provide students with general feedback on performance in the unit's examination;

  iii. to provide students with the opportunity to undertake at least one piece of formative assessed coursework within each 'standard' lectured unit, and to provide them with feedback on this formative assessment to enable them to ascertain their current level of knowledge and understanding and help them understand how they can improve their future performance;

  iv. to mark work and provide feedback to students in a timely manner, i.e. normally within three semester weeks following the submission deadline for the assignment.

- Within their role as tutor:

  i. to be aware of their tutees' overall performance;
  ii. to provide feedback on their tutees' draft laboratory reports;
  iii. to provide their tutees with the opportunity to discuss their general progress on an individual basis.

- Within their role as Director of Studies, to provide students with the opportunity to discuss their general progress on an individual basis;

- Within their role as project supervisors, to provide students with the opportunity for regular weekly contact to discuss progress, and to provide feedback on students' draft project reports.

Responsibilities of Students:

- To attend all timetabled sessions within units and to undertake all assessments (both summative and formative) within units;
- To attend all tutorial sessions and to avail themselves of the opportunities for receiving feedback on their performance from their tutor;
- To reflect upon and engage positively with the feedback provided to them on these assessments, and to use this feedback to deepen their knowledge and understanding.

7.8 Academic Integrity: Referencing and Plagiarism

Plagiarism is the use of any published or unpublished work without proper acknowledgement in your references. Plagiarism occurs when a student 'borrows' or copies information, data, or results from an unacknowledged source, without quotation marks or any indication that the presenter is not the original author or researcher.

Another form of plagiarism (and hence cheating) is auto-plagiarism or self-plagiarism. This occurs when a student submits work (whether a whole piece or part of a piece) without acknowledging that they have used this material for a previous assessment.

If you use someone else's work – say, by summarising it or quoting from it – you must reference the original author. This applies to all types of material: not only text, but also diagrams, maps, tables, charts, and so on. Be sure to use quotation marks when quoting from any source (whether original or secondary). Fully reference not only quotations, but also paraphrases and summaries. Such references should then be included in a bibliography or reference list at the end of the piece of work. Note that the need for referencing also applies to web-based material; appropriate references according to the type of work or image should always be given.

There are several acceptable styles for referencing material, within two general systems: Name/date (e.g. Harvard) and Numeric. **Ask your Director of Studies or Personal Tutor for further information and advice on the referencing style used on your programme.**

Guidance on referencing and plagiarism is available through skills training run by the University and the Students' Union, as well as online resources. Information guides and style sheets are available from the Library, and your Subject Librarian will be able to help with any questions.

Further information

For a range of skills and development opportunities see: http://go.bath.ac.uk/skills
Library referencing resources, including style sheets:
www.bath.ac.uk/library/infoskills/referencing-plagiarism

Students' Union Skills Training: thesubath.com/skills-training

7.9 Academic Integrity: Training and Test

As a student registered on a University of Bath award, you are required to undertake the academic integrity training and pass the associated test.

The academic integrity training aims to provide all students with a basic knowledge and understanding of good academic practice. This includes an understanding of plagiarism and other assessment offences, and skills necessary to reference your work appropriately.

The training and test are accessed from Moodle by clicking on the link entitled **'Academic Integrity Initiative'**: http://moodle.bath.ac.uk

If you have any access problems, then please contact the Undergraduate Programme Administrator (phys-prog-admin@bath.ac.uk) in the first instance.

When you have completed the training tutorial and are confident that you have understood it, you should undertake the test.

To pass the test you will need to achieve a mark of 85%. You can take the test as many times as necessary until you pass.

If you do not pass the test, you will need to re-visit the training and/or look at the other guidance available to you or as required by your Director of Studies, and then take the test again.

You will not be able to progress beyond the next progression point in your studies, irrespective of your programme marks, until you pass this test.

Ultimately this means that, if you have not passed the test, you will not be able to receive your award. Your Director of Studies will be able to confirm when the next progression point occurs for your stage of your programme.

Further information

Academic and information skills:

www.bath.ac.uk/library/infoskills

www.bath.ac.uk/professional-services/academic-skills-programme-asp

Regulation 3.7: www.bath.ac.uk/publications/regulations-for-students

7.10 Academic Integrity: Penalties

Any student who is found to have used unfair means in an examination or assessment procedure will be penalised. 'Unfair means' here include:

- cheating - for example, unauthorised use of notes or course material in an examination
- fabrication - for example, reporting on experiments that were never performed
- falsification - for example, misrepresentation of the results of experimentation
- plagiarism, including self-plagiarism (see above)
- unfair collaboration or collusion - representation of work produced in collaboration with another person or persons as the work of a single candidate.

The University's Quality Assurance Code of Practice, QA53 Examination and Assessment Offences, sets out the consequences of committing an offence and the penalties that might be applied.

Penalties for unfair practice will be determined by the Department or by the Faculty/School Board of Studies in line with the procedures set out in QA53. They may include failure of the assessment unit or part of a degree, with no provision for reassessment or retrieval of that failure. Proven cases of plagiarism or cheating can also lead to an Inquiry Hearing or disciplinary proceedings. Claims of inadvertence or ignorance will not be accepted as a basis for mitigation of a penalty.

If you are accused of an offence, the Students' Union's welfare services are available to support you. You have the right to appeal against the outcome of the investigation.

Further information

Examination and assessment offences: www.bath.ac.uk/quality/documents/QA53.pdf

Appealing a decision about an assessment offence:

https://www.bath.ac.uk/guides/additional-support-and-funding-for-care-leavers-foyer-residents-and-estranged-students/

Students' Union advice and support: thesubath.com/advice

7.11 Plagiarism Detection and Personal Data

When you hand in a piece of assessed coursework, you will be expected to make a declaration that the work is your own and, where you have re-used your own work and/or used other sources of information, that you have referenced the material appropriately.

The University uses a plagiarism detection service. This service checks electronic, text-based submissions against a large database of material from other sources and, for each submission, produces an 'originality report'. It makes no judgement on the intention behind the inclusion of unoriginal work; it simply highlights its presence and links to the original source.

This service complies with the European General Data Protection Regulation (Regulation (EU) 2016/679) (GDPR). When you register with the University, you give it permission to process your personal data for a variety of legitimate purposes. This includes allowing the University to disclose such data to third parties for purposes relating to your studies. The University, at its sole discretion, may submit the work of any student to a plagiarism detection service (in accordance with Regulation 15.3e – see below) and may make, or authorise third parties to make, copies of any such work for the purposes of:

i) assessment of the work

ii) comparison with databases of earlier work or previously available works to confirm the work is original

iii) addition to databases of works used to ensure that future works submitted at this institution and others do not contain content from the work submitted.

The University will not make any more copies of your work than are necessary, and will only retain these for so long as remains necessary, for these purposes.

Please note that, if at any time the University submits any of your work to a plagiarism detection service, the service will be provided with, and will retain, certain personal data relating to you – for example, your name, email address, programme details and the work submitted. Such data may be transferred by a plagiarism detection service to countries worldwide (some of which may not be governed by EU data legislation) in order for the work to be checked and an originality report generated in accordance with the proper workings of the plagiarism detection service. Personal data is retained indefinitely by the plagiarism detection service upon submission of work. You may ask for your personal data to be removed by contacting the University's Data Protection Officer.

Further information

The University's procedures on Examination and Assessment Offences (QA53) are described at: www.bath.ac.uk/quality/documents/QA53.pdf

Regulation 15, Assessment of undergraduate and taught postgraduate programmes: www.bath.ac.uk/publications/regulations-for-students

University's Data Protection Officer: dataprotection-queries@lists.bath.ac.uk

7.12 Word Counts

Written coursework tasks will normally have a word range or limit. This is in order to give an indication of the depth and detail of work required, and to ensure that students' submitted work is comparable. You will be required to declare the word count for your work when submitting it for assessment.

If you do not observe the given word range or limit for the coursework task, for example if you exceed the word limit, then a penalty will be applied. The penalty that would apply should be stated in writing when the assignment task is distributed. You should take note of what is included when calculating the total word count (e.g. whether or not contents pages, appendices, footnotes, bibliographies and other elements that are not part of the main text are included).

You should check with your Director of Studies if you have questions about word counts and penalties.

7.13 Late Submission of Coursework

You will be expected to hand in all assessed coursework and dissertations/projects by a specified date and time. This is to ensure fairness to all students.

If there are valid circumstances preventing you from meeting a deadline, your Director of Studies may grant you an extension to the specified submission date. Forms to request an extension are available from your Department. You will need to provide a description of the circumstances which you feel support your request. Your Director of Studies may ask you to produce supporting evidence.

Please note that:

- if you submit a piece of work after the submission date, and no extension has been granted, the maximum mark possible will be the pass mark

- if you submit work more than five working days after the submission date, you will normally receive a mark of 0 (zero), unless you have been granted an extension.

It is not usually possible to mark coursework anonymously if it is submitted after the deadline.

It is important that you speak to your Director of Studies as soon as possible if you become concerned about your submission deadlines.

See also the section in this Handbook on **Submission deadlines**.

7.14 Individual Mitigating Circumstances

Individual Mitigating Circumstances (IMCs) are the conditions which temporarily prevent you from undertaking assessment or significantly impair your performance in assessment. As such, the measure of their severity is not about impact on you, but the impact on your affected assessment.

Full information and guidance on Individual Mitigating Circumstances and Assessment (including definitions of IMCs, in the document "What are Individual Mitigating Circumstances?") is available at: www.bath.ac.uk/registry/imc/imc-students.html

It is strongly advised that you become familiar with the available guidance so that you understand the process and timescales should such circumstances arise.

You should make yourself familiar with these definitions, in addition to any IMC guidance offered by your Department, and support and guidance offered through the Disability Service (www.bath.ac.uk/groups/disability-service) or the Students' Union Advice and Support Centre (thesubath.com/advice).

Your Department/School will be able to advise you on how to submit an IMC claim, and your Director of Studies can help you to understand the potential implications of your IMC claim on your overall progress and/or award, in light of your academic achievement to date and the assessment regulations for your programme.

Your IMC claim must be submitted no more than three days after the affected assessment. The IMC form is available at: www.bath.ac.uk/registry/imc/imc-students.html

You will also need to submit evidence of how your circumstances affected the relevant assessment(s), for example, a medical certificate in the case of illness or injury.

If you know of a potential IMC that may affect your assessment before you begin an examination period or before a submission date, it is important that you speak to your Director of Studies as soon as possible. After speaking to your Director of Studies, if you do intend to submit a formal IMC claim for the assessment(s) you feel were affected, you will still need to complete the form and follow procedures.

7.15 Assessment Processes

Assessment and marking processes at the University are designed to ensure that assessment of your work is fair and consistent, and that academic standards are appropriate and comparable between the University and other higher education institutions. This is achieved in a number of ways.

Marking: Assessments you will complete during your programme are marked according to:

- *marking criteria (or assessment criteria)* - these are the knowledge, understanding and skills which it has been identified that students should demonstrate in the assessment and which are taken into account during marking. They are based on the learning outcomes being assessed
- *marking schemes* - these are detailed descriptions of how specific numbers of marks should be assigned against individual components of an answer within the assessment task
- *grade descriptors* - these are descriptions of the levels of achievement required in order to get a result within a given band of marks (e.g. 70% or more).

Anonymous marking: The University has adopted a principle of anonymous marking in order to protect students and staff from bias, and the perception of bias, in the marking process. It applies to all examinations and, where practical, other assessment. It is not possible to mark all coursework anonymously as in some types of assessment the student can be easily identified by the marker (e.g. presentations, group work, laboratory work) or it might not be practical, or in the student interest, to do so. You will be informed when your coursework is to be marked anonymously.

Moderation: Both the setting and the marking of assessments are independently checked through a process known as moderation to ensure that questions test the learning outcomes and are set at the right standard, and that marking is consistent and fair. Moderation is conducted by internal examiners and also by your External Examiner (see below).

Boards of Examiners: Assessment decision-making at the University is the responsibility of Boards of Examiners established at three levels: assessment outcomes go first to *Boards of Examiners for Units*, then *Boards of Examiners for Programmes*, then finally to *Boards of Studies*. Boards of Studies confirm decisions relating to student progression from one stage of the programme to the next and the final award. **The assessment marks you are given initially by markers are therefore provisional up until the point when they have been confirmed by the Board of Studies for your programme.** An official release date is set when your confirmed results will be made available to you via SAMIS (the University's student records system). An academic appeal can only be made in relation to a confirmed result (see the section in this Handbook on **Procedures for Academic Appeals**).

All marks for a unit are reviewed at a meeting of a Board of Examiners for Units which will verify that the assessment process has been conducted appropriately and that the marks are an accurate reflection of the standards achieved. On rare occasions a Board of Examiners may decide to recommend a change to the provisional marks assigned initially, based on evidence that there was a problem with the assessment (for instance, disruption during an examination, or an exam paper that was too easy or difficult) which means that the marks assigned initially do not accurately reflect the standards achieved by the candidates. This

adjustment is known as scaling and under these circumstances the marks of all affected students will be changed.

7.16 External Examiners

An External Examiner is someone from another University or a professional organisation who is suitably qualified and experienced in the relevant field of study. At least one External Examiner is appointed for each taught programme or group of programmes. The role of External Examiner is an important one in assuring that assessment processes are fair and academic standards are appropriate, and supporting the development of your programme. External Examiners review draft examination papers and samples of assessed work, and attend Boards of Examiners. They are members of relevant Boards of Examiners.

Once a year, the External Examiners will provide a written report on each taught programme. University staff, including the Head of Department and Director of Studies will look at these reports and a response will be made to the External Examiner's comments. Staff/Student Liaison Committees (SSLCs) also discuss External Examiner reports as part of annual monitoring activity.

You can read the latest External Examiner report for your programme, and the University's response to it. See: https://www.bath.ac.uk/publications/external-examiner-annual-reports/

The External Examiners for your programme are:

- Dr Mark Hughes, School of Physics and Astronomy, University of Manchester;
- Professor Mark Fromhold, School of Physics and Astronomy, University of Nottingham.

It is not appropriate for students to make direct contact with External Examiners. If you are dissatisfied with the process or outcome of an assessment, and are considering whether to raise this either informally or formally, the sections of this Handbook on **Procedures for Academic Appeals** and **Dealing with a problem involving the University: Complaints** give some more information about the University's procedures for student complaints and academic appeals. The section on **Student representation** sets out how students can engage with the quality management process through which the University considers and responds to External Examiners' comments and suggestions.

7.17 Examinations: Information and Guidance

Rules and procedures for examinations are set out in the University's Regulation 15 and Rule 2. The dates of the University's formal assessment periods are found on the academic year charts: www.bath.ac.uk/publications/academic-year-charts

You will have access to your personal examination timetable via SAMIS approximately seven weeks before the assessment period begins.

If you have learning or support needs and think you may require alternative examination arrangements please seek advice from the Disability Service and inform your Director of Studies as early as possible.

Further information
www.bath.ac.uk/student-records/examinations/examinations-information
Regulation 15: www.bath.ac.uk/publications/regulations-for-students
Rule 2: https://www.bath.ac.uk/corporate-information/rule-2-conduct-of-examinations/
Disability Service: www.bath.ac.uk/groups/disability-service

7.18 Assessment Regulations

The University's **New Framework for Assessment: Assessment Regulations: Phase 1 for first-degree programmes ('NFAAR-UG')** specifies the rules governing students' progression from one stage of their programme to the next as well as for the award of degrees. The rules cover all areas of assessment, including supplementary assessment and the extent to which failure may be condoned. If you began the first stage of your programme in or after the 2008/09 academic year, NFAAR-UG applies to you. (If you began before then, please ask your Director of Studies for guidance on assessment).

Your programme is covered by the NFAAR-UG, so your work will be assessed according to its rules.

If at any time you are in doubt about how NFAAR-UG provisions apply to your work, please consult your Director of Studies.

This section highlights areas of the University's assessment framework for the type of programme you are undertaking. It explains the regulations that govern your assessment and outlines how the University makes decisions concerning your progression through your programme and award. Complete information is available in the NFAAR-UG document.

Important information

This section may contain terms unfamiliar to you. In addition to the explanations we give below you can find full definitions at:

https://www.bath.ac.uk/publications/nfaar-ug-and-appendices/attachments/nfaar-ug-appendix-02.pdf

For full details of the NFAAR-UG, visit: https://www.bath.ac.uk/corporate-information/new-framework-for-assessment/

You can find a student introduction to the NFAAR-UG at: https://www.bath.ac.uk/publications/nfaar-ug-and-appendices/attachments/nfaar-ug-intro-faq.pdf

For information relating to your programme in the current academic year, visit: www.bath.ac.uk/catalogues

7.19 Your programme and How You are Assessed

Within your programme of study, there are *compulsory units*, (i.e. those units in a programme which must be taken by every student registered on the programme), and *optional units* (i.e. those units you may choose from a range of options).

The **Programme Description: Structure of the programme** section in this Handbook shows the structure of your programme. In the table, compulsory and optional units are labelled 'C' and 'O' respectively.

Please note that you can also access this information via links in your programme's description in the Programme and Unit Catalogues available at: www.bath.ac.uk/catalogues

At the end of the table, there are links to the relevant appendices of the NFAAR-UG which state exactly how the assessment rules operate for each stage of your programme.

There are some units that you must pass in order to progress to the next stage of your programme and to achieve the normal award for the programme at the end. Such units are called *Designated Essential Units* (*DEU*s). Failure in a DEU – even marginal failure – will prevent you from progressing (or completing) your programme.

Programmes are divided into a number of *parts* and *stages*. For full-time students, stages usually correspond to the year of study (so, for example, most first-year students will be in Stage 1 of their programmes).

Within each stage of a programme, the contribution of each unit's assessment to the calculation of the *Overall Stage Average* (*OSA*) is normally directly proportional to the credit-values of the unit concerned. Placement units form part of a stage and have a credit weighting. Some placement units carry marks and some are just pass/fail. Only enhanced placement units contribute to the *Overall Programme Average (OPA)* however.

The normal pass mark for a unit is 40%. In some units, you might need to achieve a threshold mark in one or more component assessments in order to pass the unit overall.

7.20 How your Performance is Assessed

The rules differ slightly between 'Coexistent Master Programmes' (which lead to a Master's degree but have an associated programme leading to a Bachelor's degree) and other programmes.

If you fail a stage, you will be required either to repeat the entire stage or to transfer to a *Designated Alternative Programme (DAP)*, if one exists, or if you fail very badly, to withdraw from the University. Where stage repeats are possible within the set limits, the repeating of any stage will be permitted once only.

At the end of each stage a Board of Examiners will decide whether you have passed the stage. The outcome will depend on both (1) your average mark in the stage and (2) the marks you obtain for each unit. Generally, if you pass each of your units (and, in a Coexistent Master programme, reach any OSA requirement set in addition), you will progress (or, after the final stage, be recommended for an award).

If you fail a large number of units (or, in a Coexistent Master programme do not reach any OSA requirement set in addition), you might fail the stage outright without any opportunity for supplementary assessment. (Further information on supplementary assessment is provided below.)

Particular rules apply to failure of units. They are as follows:

- if you fail any DEUs, you will have to undertake supplementary assessment – unless you have failed so many DEUs that you fail the stage outright
- if you fail any non-DEUs badly (i.e. achieve less than 35%), you will have to undertake supplementary assessment – unless you have failed so many units that you fail the stage outright
- if you fail only non-DEUs marginally (i.e. achieve 35%-39%), you might be able to progress without supplementary assessment. Whether you do progress will depend on the total credit value of the failed units and also on your OSA.

Your degree result is based on the calculation of your *Overall Programme Average (OPA)* based on the stages in Parts 2 and 3 of your programme. The contribution of each stage of the programme is set out in the table of assessment weightings and decision references in the **Programme Description: Structure of the programme** section in this Handbook. Follow the links provided in the table to see a clear description of the assessment rules for each stage of your programme. Stages in Part 1 are not included in the OPA calculation.

7.21 Supplementary Assessment

'Supplementary assessment' is the term normally used for an opportunity given to a student to retrieve failure before starting the next stage of a programme. It generally involves re-

doing coursework or re-sitting an examination. Students undertaking supplementary assessments are likely to have to return to the University in the summer to re-sit examinations.

Academic year dates, including the supplementary assessment period, can be found at: https://www.bath.ac.uk/publications/academic-year-charts

Each unit's method of supplementary assessment is shown in the online Unit Catalogue.

In units where the original assessment is a written examination, supplementary assessment may sometimes take the form of reworking an examination paper, known as 'mandatory extra work', rather than re-sitting the examination. In such cases the pass mark is 70% and a mark below 60% is considered a bad fail.

If you pass all your supplementary assessments, you will be able to progress onto the next stage of your programme.

The outcomes of failing a supplementary assessment are as follows:

1) if you fail supplementary assessment in a DEU, you will fail the stage
2) if you fail supplementary assessment in a non-DEU badly, you will fail the stage
3) if you fail supplementary assessment in a non-DEU marginally, you might be able to progress; whether you may do so will depend on how many units you have failed (and in some cases also on your Overall Stage Average).

7.22 Exit Awards – CertHE and DiplHE

If you leave your programme early you may be eligible for a generic exit award, either a Certificate of Higher Education (CertHE) or a Diploma of Higher Education (DiplHE).

7.23 Procedures for Academic Appeals

Students wishing to submit a request for an academic appeal should refer to Regulation 17 (Conduct of Student Academic Appeals and Reviews):
www.bath.ac.uk/publications/regulations-for-students

You are also strongly advised to read the online guidance provided by the Academic Registry:
www.bath.ac.uk/guides/appealing-against-an-academic-decision/

Independent advice about academic appeals is offered by the Students' Union Advice and Support Centre: www.thesubath.com/advice

Regulation 17.16 outlines how you may appeal against formal Board of Studies decisions in respect of one or more of the following:

i) the student's suitability to progress from one stage of the programme of study to the next

ii) the student's suitability to remain on the programme of study

iii) the marks/grades, degrees, certificates or diplomas, and the classifications/grades awarded to the student.

The regulation also sets out the grounds on which an appeal can be based (Regulation 17.16). Please note that:

- dissatisfaction with a mark or set of marks, or any other aspect of the properly exercised academic judgement of the examiners, will not of itself be acceptable as a valid ground for an academic appeal (Regulation 17.1)
- students who have concerns about assessment outcomes that have not yet been approved by a Board of Studies should seek advice in the first instance from their Director of Studies. This may include matters such as suspecting errors in the totalling or transcription of marks/grades, or wishing to seek clarification about the marking process (Regulation 17.2).

All academic appeals must be submitted within the timescales set out in Regulation 17. You must provide the required information and evidence, including a completed AA1 form. The form and further academic appeals guidance are available at:

www.bath.ac.uk/guides/appealing-against-an-academic-decision/

Student Complaints are dealt with under separate procedures. For more information, see: www.bath.ac.uk/guides/student-complaints-procedure

If you are uncertain as to whether your concerns are a potential academic appeal or a student complaint, please refer to the guidance at: www.bath.ac.uk/students/support/complaints

8 General Information

8.1 University Regulations for Students

All registered students of the University are subject to the University's Regulations for Students. The Regulations contain rules and other important information about being a student at the University of Bath, including regulations governing the payment of fees due to the University, student discipline, fitness to study and those governing attendance, conduct and progress in studies. They also form part of the formal contract between you and the University. You will find references to the requirements of the Regulations for Students throughout this Handbook. You are advised to download a copy of the Regulations and read them carefully as they contain a lot of important information.

Important information

The full Regulations for Students can be found at:

www.bath.ac.uk/publications/regulations-for-students

8.2 Registration Status

Note that only registered students may use the University's facilities, such as email, Moodle and the Library. You will be asked to register online at the start of your programme of study and then to re-register at the start of every academic year thereafter until you have completed your programme. It is a requirement that you register when asked to do so. Tuition fees for each academic year are payable at registration in full or in instalments.

https://www.bath.ac.uk/guides/registering-with-the-university/

Regulation 1.1 explains the requirement to register. Regulations 2.4 and 2.10 explain the consequences of non-payment of tuition fees:

www.bath.ac.uk/publications/regulations-for-students

8.3 Attendance Monitoring

Guidance and requirements on attendance, including the University's Attendance Monitoring and Engagement Policy for Tier 4 students, are available at:
www.bath.ac.uk/guides/attendance-monitoring-for-tier-4-students

This page also sets out information on when and how to request an authorised absence.

8.4 Change in Your Circumstances

It is important to ensure that the University holds your correct, up-to-date, personal and academic details within SAMIS, the University's student records database. If you change

your address – either your semester-time or home address – please update your details online at: https://samis.bath.ac.uk

If you change your name, you will need to provide valid proof of the change. Please speak to your Department or Faculty/School administration, or Student Services in the Roper Centre, for advice on how to do this.

If you are considering suspending your studies, transferring from one programme to another, or withdrawing from your programme, please discuss your situation with your Director of Studies. They will be able to advise you on an appropriate course of action.

It is a University Regulation (3.1) that you attend regularly. If circumstances are such that you are not able to do so, then please contact your Director of Studies to discuss your situation and agree an appropriate course of action.

Your Personal Tutor will also be able to provide support and guidance on matters relating to your programme.

The financial implications of withdrawing from the University or suspending your studies can be significant.

You will find general information at: www.bath.ac.uk/students/finance/changes-to-your-study/withdrawing-or-suspending-from-your-course

The Student Money Advice Team in Student Services and the Student Finance Office will be able to advise you on the implications for fees in your situation and on how to suspend any student funding you are receiving.

If you are an international student holding a Tier 4 visa, you should consult the advisers in the Student Immigration Service about the implications of suspending or withdrawing from your programme: www.bath.ac.uk/topics/visas

You will need to register any change of academic circumstance, including a change of optional units, with the University. Please speak to your Department or Faculty/School administration who will advise you on how to do this.

8.5 Health and Safety

The University's Health and Safety Policy Statement is available at:

https://www.bath.ac.uk/corporate-information/health-and-safety-policy/

The Policy Statement is also displayed throughout the campus. Staff within the University Health, Safety and Environment Service (Wessex House 3.12) provide professional advice on health and safety matters and monitor the health and safety performance of the University.

Further information

Email: uhse@bath.ac.uk

Current University guidance on fieldwork, work placements and overseas travel: www.bath.ac.uk/corporate-information/fieldwork-safety-standard

https://www.bath.ac.uk/publications/placements-and-study-abroad-programmes-safety-standard/

www.bath.ac.uk/guides/overseas-travel-safety-guidance

8.6 Data Protection

The University's Data Protection Policy and Guidelines on Data Protection may be accessed via the data protection website: www.bath.ac.uk/data-protection

9 Appendix A: Programme Structures and Assessment

The content of the programme description below is correct at the time of production of this Handbook, and programmes and units may be subject to reasonable change (see the earlier section on **Unit and Programme Changes**) in accordance with normal University procedures. Current versions of unit and programme descriptions are available via the online Unit and Programme Catalogues: www.bath.ac.uk/catalogues.

The following tables show which units are compulsory or optional for each of the Physics and Physics with Astrophysics degree programmes offered by the Department:

Programme code	Programme title
USPH-AFB01	BSc Physics
USPH-AKB02	BSc Physics with Professional Placement
USPH-AAB02	BSc Physics with Study Year Abroad
USPH-AFB10	BSc Physics with Astrophysics
USPH-AKB10	BSc Physics with Astrophysics with Professional Placement
USPH-AAB10	BSc Physics with Astrophysics with Study Year Abroad
USPH-AFM02	MPhys Physics
USPH-AFM04	MPhys Physics with Research Placement
USPH-AKM03	MPhys Physics with Professional Placement
USPH-AKM04	MPhys Physics with Professional and Research Placements
USPH-AAM03	MPhys Physics with Study Year Abroad
USPH-AFM10	MPhys Physics with Astrophysics
USPH-AFM11	MPhys Physics with Astrophysics with Research Placement
USPH-AKM10	MPhys Physics with Astrophysics with Professional Placement
USPH-AKM11	MPhys Physics with Astrophysics with Professional and Research Placements
USPH-AAM10	MPhys Physics with Astrophysics with Study Year Abroad

The tables also show the assessment weightings and references for NFAAR-UG decisions for the different stages in these programmes. Chapter 7 of this handbook provides further explanation of NFAAR-UG, including the abbreviations in these tables.

Notes:

- The following tables are applicable for all years of study for the 2019/20 academic year only. Students continuing their studies into 2020/21 and beyond should not assume that these programmes, or their component units, will be delivered in future years in the format displayed here.
- NFAAR regulations are subject to review and update. Links given here provide access to the latest versions of NFAAR documentation. The regulations described in these tables are not necessarily those that applied in previous academic years.
- Availability of units is subject to constraints such as staff availability, minimum and maximum group sizes, and timetabling factors as well as a student's ability to meet any pre-requisite rules.

9.1 BSc Physics

Programme code	USPH-AFB01
Programme title	BSc (Hons) Physics
Award type	Bachelor of Science with Honours
Mode of Attendance	Full time
Length	3 years
State if coexistent M-level programme	No
State any designated alternative programme(s)	USPH-AFM02 MPhys Physics
Approving body and date of approval	Faculty of Science Teaching and Quality Committee (30th Jan 2013)

Year 1

Part	Stage	Normal period of study for this Mode		Unit code	Unit title	Unit status	Credits	DEU status
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2

Part	Stage	Normal period of study for this Mode		Unit code	Unit title	Unit status	Credits	DEU status
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3								
Part	**Stage**	**Normal period of study**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	3	Yr3	AY	PH30036	Final year project	DE: Select 1 unit	12	DEU
				PH30096	Industry team project		12	DEU
				PH30099	Communicating physics project		12	DEU
			S1	PH30024	Contemporary physics	O: Select 24 credits	6	
				PH30028	Condensed matter physics 2		6	
				PH30030	Quantum mechanics		6	
				PH30031	Simulation techniques		6	
				PH30035	Medical physics		6	
				PH30072	Problem-solving skills		6	
				PH30108	Fluid dynamics in physics & astrophysics		6	
				PH30109	Stars & stellar evolution		6	
				PH30116	Data analysis & research methods for observational astronomy		6	
				ED30005	Science education in practice		6	
				ZZ00001	Director of Studies approved unit		6	
			S2	PH30025	Mathematical methods	O: Select 24 credits	6	
				PH30032	Laser physics		6	
				PH30056	Computational physics B		6	
				PH30077	Electromagnetism 2		6	
				PH30078	Magnetism		3	
				PH30079	Superconductivity		3	
				PH30098	Networks		3	
				PH30101	General relativity		6	
				PH30110	Computational astrophysics		6	
				PH30111	Galaxies & introduction to cosmology		6	
				ED30006	Issues in science education		6	
				ZZ00001	Director of Studies approved unit		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 2	32 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 3	68 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.2 BSc Physics with Placement

Programme code	USPH-AKB02
Programme title	BSc Physics with work placement
Award type	Bachelor of Science with Honours
Mode of Attendance	Thick sandwich
Length	4 years
State if coexistent M-level programme	No
State any designated alternative programme(s)	USPH-AKM03 MPhys Physics with Professional Placement
Approving body and date of approval	Faculty of Science Teaching and Quality Committee (30th Jan 2013)

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20040	Professional placement	C	60

Year 4								
Part	**Stage**	**Normal period of study**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr4	AY	PH30036	Final year project	DE: Select 1 unit	12	DEU
				PH30096	Industry team project		12	DEU
				PH30099	Communicating physics project		12	DEU
			S1	PH30024	Contemporary physics	O: Select 24 credits	6	
				PH30028	Condensed matter physics 2		6	
				PH30030	Quantum mechanics		6	
				PH30031	Simulation techniques		6	
				PH30035	Medical physics		6	
				PH30072	Problem-solving skills		6	
				PH30108	Fluid dynamics in physics & astrophysics		6	
				PH30109	Stars & stellar evolution		6	
				PH30116	Data analysis & research methods for observational astronomy		6	
				ED30005	Science education in practice		6	
				ZZ00001	Director of Studies approved unit		6	
			S2	PH30025	Mathematical methods		6	

				PH30032	Laser physics	O: Select 24 credits	6	
				PH30056	Computational physics B		6	
				PH30077	Electromagnetism 2		6	
				PH30078	Magnetism		3	
				PH30079	Superconductivity		3	
				PH30098	Networks		3	
				PH30101	General relativity		6	
				PH30110	Computational astrophysics		6	
				PH30111	Galaxies & introduction to cosmology		6	
				ED30006	Issues in science education		6	
				ZZ00001	Director of Studies approved unit		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 2	32 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 3	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 4	68 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.3 BSc Physics with study year abroad

Programme code	USPH-AAB02
Programme title	BSc Physics with study year abroad
Award type	Bachelor of Science with Honours
Mode of Attendance	Full time
Length	4 years
State if coexistent M-level programme	No
State any designated alternative programme(s)	USPH-AAM03 MPhys Physics with study year abroad
Approving body and date of approval	Faculty of Science Teaching and Quality Committee (30th Jan 2013)

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20042	Study year abroad	C	60

Year 4								
Part	**Stage**	**Normal period of study**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr4	AY	PH30036	Final year project		12	DEU

				PH30096	Industry team project	DE: Select 1 unit	12	DEU
				PH30099	Communicating physics project		12	DEU
			S1	PH30024	Contemporary physics	O: Select 24 credits	6	
				PH30028	Condensed matter physics 2		6	
				PH30030	Quantum mechanics		6	
				PH30031	Simulation techniques		6	
				PH30035	Medical physics		6	
				PH30072	Problem-solving skills		6	
				PH30108	Fluid dynamics in physics & astrophysics		6	
				PH30109	Stars & stellar evolution		6	
				PH30116	Data analysis & research methods for observational astronomy		6	
				ED30005	Science education in practice		6	
				ZZ00001	Director of Studies approved unit		6	
			S2	PH30025	Mathematical methods	O: Select 24 credits	6	
				PH30032	Laser physics		6	
				PH30056	Computational physics B		6	
				PH30077	Electromagnetism 2		6	
				PH30078	Magnetism		3	
				PH30079	Superconductivity		3	
				PH30098	Networks		3	
				PH30101	General relativity		6	
				PH30110	Computational astrophysics		6	
				PH30111	Galaxies & introduction to cosmology		6	
				ED30006	Issues in science education		6	
				ZZ00001	Director of Studies approved unit		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 2	32 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 3	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 4	68 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.4 BSc Physics with Astrophysics

Programme code	USPH-AFB10
Programme title	BSc Physics with Astrophysics
Award type	Bachelor of Science with Honours
Mode of Attendance	Full-time
Length	3 years
State if coexistent M-level programme	No
State any designated alternative programme(s)	USPH-AFM10 MPhys Physics with Astrophysics
Approving body and date of approval	Senate 15.10.2014

Year 1

Part	Stage	Normal period of study for this Mode		Unit code	Unit title	Unit status	Credits	DEU status
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2

Part	Stage	Normal period of study for this Mode		Unit code	Unit title	Unit status	Credits	DEU status
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	3	Yr3	AY	PH30036	Final year project	DE: Select 1 unit	12	DEU
				PH30096	Industry Team Project		12	DEU
				PH30099	Communicating Physics Project		12	DEU
			S1	PH30108	Fluid dynamics in physics & astrophysics	C	6	
				PH30109	Stars and Stellar Evolution	C	6	
				PH30024	Contemporary physics	O: Select 2 Units	6	
				PH30028	Condensed matter physics 2		6	
				PH30030	Quantum mechanics		6	
				PH30031	Simulation techniques		6	
				PH30035	Medical physics		6	
				PH30116	Data analysis & research methods for observational astronomy		6	
				ED30005	Science education in practice		6	
				ZZ00001	Director of Studies approved unit		6	
			S2	PH30101	General relativity	C	6	
				PH30111	Galaxies and introduction to cosmology	C	6	
				PH30025	Mathematical methods	O: Select 12 credits	6	
				PH30032	Laser physics		6	
				PH30056	Computational Physics B		6	
				PH30077	Electromagnetism 2		6	
				PH30078	Magnetism		3	
				PH30079	Superconductivity		3	
				PH30098	Networks		3	
				PH30110	Computational astrophysics		6	
				ED30006	Issues in science education		6	
				ZZ00001	Director of Studies approved unit		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference.** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 2	32 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12

Stage 3	68 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.5 BSc Physics with Astrophysics with Placement

Programme code	USPH-AKB10
Programme title	BSc Physics with Astrophysics with Placement
Award type	Bachelor of Science with Honours
Mode of Attendance	Full-time with Thick Sandwich Placement
Length	4 years
State if coexistent M-level programme	No
State any designated alternative programme(s)	USPH-AKM10 MPhys Physics with Astrophysics with Professional Placement
Approving body and date of approval	Senate 15.10.2014

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	

				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20040	Professional placement	C	60

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr4	AY	PH30036	Final year project	DE: Select 1 unit	12	DEU
				PH30096	Industry Team Project		12	DEU
				PH30099	Communicating Physics Project		12	DEU
			S1	PH30108	Fluid dynamics in physics & astrophysics	C	6	
				PH30109	Stars and Stellar Evolution	C	6	
				PH30024	Contemporary physics	O: Select 2 Units	6	
				PH30028	Condensed matter physics 2		6	
				PH30030	Quantum mechanics		6	
				PH30031	Simulation techniques		6	
				PH30035	Medical physics		6	
				PH30116	Data analysis & research methods for observational astronomy		6	
				ED30005	Science education in practice		6	
				ZZ00001	Director of Studies approved unit		6	
			S2	PH30101	General relativity	C	6	
				PH30111	Galaxies and introduction to cosmology	C	6	
				PH30025	Mathematical methods	O: Select 12 credits	6	
				PH30032	Laser physics		6	
				PH30056	Computational Physics B		6	
				PH30077	Electromagnetism 2		6	
				PH30078	Magnetism		3	
				PH30079	Superconductivity		3	
				PH30098	Networks		3	
				PH30110	Computational astrophysics		6	
				ED30006	Issues in science education		6	
				ZZ00001	Director of Studies approved unit		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 2	32 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 3	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 4	68 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.6 BSc Physics with Astrophysics with Study Year Abroad

Programme code	USPH-AAB10
Programme title	BSc Physics with Astrophysics with Study Year Abroad
Award type	Bachelor of Science with Honours
Mode of Attendance	Full-time with Study Year Abroad
Length	4 years
State if coexistent M-level programme	No
State any designated alternative programme(s)	USPH-AAM10 MPhys Physics with Astrophysics with Study Year Abroad
Approving body and date of approval	Senate 15.10.2014

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20042	Study year abroad	C	60

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr4	AY	PH30036	Final year project	DE: Select 1 unit	12	DEU
				PH30096	Industry Team Project		12	DEU
				PH30099	Communicating Physics Project		12	DEU
			S1	PH30108	Fluid dynamics in physics & astrophysics	C	6	
				PH30109	Stars and Stellar Evolution	C	6	
				PH30024	Contemporary physics	O: Select 2 Units	6	
				PH30028	Condensed matter physics 2		6	
				PH30030	Quantum mechanics		6	
				PH30031	Simulation techniques		6	
				PH30035	Medical physics		6	
				PH30116	Data analysis & research methods for observational astronomy		6	
				ED30005	Science education in practice		6	
				ZZ00001	Director of Studies approved unit		6	
			S2	PH30101	General relativity	C	6	
				PH30111	Galaxies and introduction to cosmology	C	6	
				PH30025	Mathematical methods	O: Select	6	
				PH30032	Laser physics		6	
				PH30056	Computational Physics B		6	

				PH30077	Electromagnetism 2	12 credits	6	
				PH30078	Magnetism		3	
				PH30079	Superconductivity		3	
				PH30098	Networks		3	
				PH30110	Computational astrophysics		6	
				ED30006	Issues in science education		6	
				ZZ00001	Director of Studies approved unit		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 2	32 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 3	0 %	Main assessment: Appendix 11 Supplementary assessment: Appendix 12
Stage 4	68 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.7 MPhys Physics

Programme code	USPH-AFM02
Programme title	MPhys Physics
Award type	Master of Science with Honours
Mode of Attendance	Full time
Length	4 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AFB01 BSc Physics
Approving body and date of approval	Faculty of Science Teaching & Quality Committee (30th Jan 2013)

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU

			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	S1	PH30030	Quantum mechanics	C	6
				PH30055	Computational physics A	Optional Units: Select between 0 and 12 credits (Students must select 12 credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	6
				PH30116	Data analysis & research methods for observational astronomy		6
				PH30028	Condensed matter physics 2	Optional Units: Select between 12 and 24 credits	6
				PH30031	Simulation techniques		6
				PH30035	Medical physics		6
				PH30108	Fluid dynamics in physics & astrophysics		6
				PH30109	Stars and Stellar Evolution		6
				ED30005	Science education in practice		6

				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30056	Computational physics B	Optional Units: Select between 0 and 12 credits (Students must select 12 credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	6
				PH30089	MPhys/MSci laboratory		6
				PH30110	Computational astrophysics		6
				PH30025	Mathematical methods	Optional Units: Select between 6 and 18 credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				PH30101	General relativity		6
				PH30111	Galaxies and introduction to cosmology		6
				ZZ00001	Director of Studies approved unit		6

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr 4	S1	PH40081	MPhys research project	C	30	DEU
			S2	PH40083	Advanced problem solving	C	6	
				PH40084	Advanced quantum theory	O: Select 24 credits	6	
				PH40073	Mathematical physics		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	
				PH40112	Relativistic cosmology		6	
				PH40113	High energy astrophysics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** *See NFAAR-UG information at* www.bath.ac.uk/publications/nfaar-ug-and-appendices/
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 4	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.8 MPhys Physics with research placement

Programme code	USPH-AFM04
Programme title	MPhys Physics with research placement
Award type	Master of Science with Honours
Mode of Attendance	Full time
Length	4 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AFB01 BSc Physics
Approving body and date of approval	Faculty of Science Teaching and Quality Committee (30th Jan 2013)

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	S1	PH30030	Quantum mechanics	C	6
				PH30055	Computational physics A	Optional Units: Select between 0 and 12 credits (Students must select 12 credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	6
				PH30116	Data analysis & research methods for observational astronomy		6
				PH30028	Condensed matter physics 2	Optional Units: Select between 12 and 24 credits	6
				PH30031	Simulation techniques		6
				PH30035	Medical physics		6
				PH30108	Fluid dynamics in physics & astrophysics		6
				PH30109	Stars and Stellar Evolution		6
				ED30005	Science education in practice		6
				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30056	Computational physics B		6

				PH30089	MPhys/MSci laboratory	Optional Units: Select between 0 and 12 credits (Students must select 12 credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	6
				PH30110	Computational astrophysics		6
				PH30025	Mathematical methods	Optional Units: Select between 6 and 18 credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				PH30101	General relativity		6
				PH30111	Galaxies and introduction to cosmology		6
				ZZ00001	Director of Studies approved unit		6

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr 4	S1	PH40082	MPhys research placement	C	30	DEU
			S2	PH40083	Advanced problem solving	C	6	
				PH40084	Advanced quantum theory	O: Select 24 credits	6	
				PH40073	Mathematical physics		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	
				PH40112	Relativistic cosmology		6	
				PH40113	High energy astrophysics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** *See NFAAR-UG information at* www.bath.ac.uk/publications/nfaar-ug-and-appendices/
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24

Stage 3	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 4	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.9 MPhys Physics with professional placement

Programme code	USPH-AKM03
Programme title	MPhys Physics with professional placement
Award type	Master of Science with Honours
Mode of Attendance	Thick sandwich
Length	5 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AKB02 BSc Physics with placement
Approving body and date of approval	Faculty of Science Teaching and Quality Committee (30th Jan 2013)

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	

				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20040	Professional placement	C	60

Year 4							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	4	Yr4	S1	PH30030	Quantum mechanics	C	6
				PH30055	Computational physics A	Optional Units: Select between 0 and 12 credits (Students must select 12 credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	6
				PH30116	Data analysis & research methods for observational astronomy		6
				PH30028	Condensed matter physics 2	Optional Units: Select between 12 and 24 credits	6
				PH30031	Simulation techniques		6
				PH30035	Medical physics		6
				PH30108	Fluid dynamics in physics & astrophysics		6
				PH30109	Stars and Stellar Evolution		6
				ED30005	Science education in practice		6
				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30056	Computational physics B	Optional Units: Select between 0 and 12 credits (Students must select 12	6
				PH30089	MPhys/MSci laboratory		6
				PH30110			6

					Computational astrophysics	credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	
				PH30025	Mathematical methods	Optional Units: Select between 6 and 18 credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				PH30101	General relativity		6
				PH30111	Galaxies and introduction to cosmology		6
				ZZ00001	Director of Studies approved unit		6

Year 5								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	5	Yr 5	S1	PH40081	MPhys research project	C	30	DEU
			S2	PH40083	Advanced problem solving	C	6	
				PH40084	Advanced quantum theory	O: Select 24 credits	6	
				PH40073	Mathematical physics		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	
				PH40112	Relativistic cosmology		6	
				PH40113	High energy astrophysics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	0%	Main assessment: Appendix 15 Supplementary assessment: Appendix 16

Stage 4	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 5	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.10 MPhys Physics with professional & research placements

Programme code	USPH-AKM04
Programme title	MPhys Physics with professional & research placements
Award type	Master of Science with Honours
Mode of Attendance	Full time
Length	5 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AKB02 BSc Physics with placement
Approving body and date of approval	Faculty of Science Teaching and Quality Committee (30th Jan 2013)

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU

			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20040	Professional placement	C	60

Year 4							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	4	Yr4	S1	PH30030	Quantum mechanics	C	6
				PH30055	Computational physics A	Optional Units: Select between 0 and 12 credits (Students must select 12 credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	6
				PH30116	Data analysis & research methods for observational astronomy		6
				PH30028	Condensed matter physics 2	Optional Units: Select between 12 and 24 credits	6
				PH30031	Simulation techniques		6
				PH30035	Medical physics		6
				PH30108	Fluid dynamics in physics & astrophysics		6
				PH30109	Stars and Stellar Evolution		6
				ED30005	Science education in practice		6
				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30056	Computational physics B	Optional Units: Select between 0 and 12 credits (Students must select 12	6
				PH30089	MPhys/MSci laboratory		6
				PH30110			6

					Computational astrophysics	credits in total from units PH30055, PH30056, PH30089, PH30110 & PH30116)	
				PH30025	Mathematical methods	Optional Units: Select between 6 and 18 credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				PH30101	General relativity		6
				PH30111	Galaxies and introduction to cosmology		6
				ZZ00001	Director of Studies approved unit		6

Year 5								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	5	Yr 5	S1	PH40082	MPhys research placement	C	30	DEU
			S2	PH40083	Advanced problem solving	C	6	
				PH40084	Advanced quantum theory	O: Select 24 credits	6	
				PH40073	Mathematical physics		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	
				PH40112	Relativistic cosmology		6	
				PH40113	High energy astrophysics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	0%	Main assessment: Appendix 15 Supplementary assessment: Appendix 16

Stage 4	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 5	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.11 MPhys Physics with study year abroad

Programme code	USPH-AAM03
Programme title	MPhys Physics with study year abroad
Award type	Master of Science with Honours
Mode of Attendance	Full time
Length	4 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AAB02 BSc Physics with study year abroad
Approving body and date of approval	Faculty of Science Teaching and Quality Committee (30th Jan 2013)

Year 1

Part	Stage	Normal period of study for this Mode		Unit code	Unit title	Unit status	Credits	DEU status
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2

Part	Stage	Normal period of study for this Mode		Unit code	Unit title	Unit status	Credits	DEU status
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	

				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH30043	MPhys year abroad	C	60

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr 4	S1	PH40081	MPhys research project	C	30	DEU
			S2	PH40083	Advanced problem solving	C	6	
				PH40084	Advanced quantum theory	O: Select 24 credits	6	
				PH40073	Mathematical physics		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	
				PH40112	Relativistic cosmology		6	
				PH40113	High energy astrophysics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** *See NFAAR-UG information at* www.bath.ac.uk/publications/nfaar-ug-and-appendices/
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 4	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.12 MPhys Physics with Astrophysics

Programme code	USPH-AFM10
Programme title	MPhys Physics with Astrophysics
Award type	Master of Science with Honours
Mode of Attendance	Full time
Length	4 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AFB10 BSc Physics with Astrophysics
Approving body and date of approval	Senate 15.10.2014

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	S1	PH30030	Quantum mechanics	C	6
				PH30108	Fluid dynamics in physics & astrophysics	C	6
				PH30109	Stars and Stellar Evolution	C	6
				PH30116	Data analysis & research methods for observational astronomy	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30028	Condensed matter physics 2	Optional Units: Select either 6 or 12 credits	6
				PH30031	Simulation techniques		6
				PH30035	Medical physics		6
				ED30005	Science education in practice		6
				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30101	General relativity	C	6
				PH30111	Galaxies and introduction to cosmology	C	6
				PH30056	Computational physics B	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30089	MPhys laboratory		6
				PH30110	Computational astrophysics		6
				PH30025	Mathematical methods	Optional Units: Select either 0 or 6 Credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				ZZ00001	DoS approved unit		6

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr 4	S1	PH40081	MPhys research project	C	30	DEU
			S2	PH40112	Relativistic cosmology	C	6	
				PH40113	High energy astrophysics	C	6	
				PH40083	Advanced problem solving	C	6	
				PH40073	Mathematical physics	O: Select 12 credits	6	
				PH40084	Advanced quantum theory		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 4	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.13 MPhys Physics with Astrophysics with Research Placement

Programme code	USPH-AFM11
Programme title	MPhys Physics with Astrophysics with Research Placement
Award type	Master of Science with Honours
Mode of Attendance	Sandwich
Length	4 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AFB10 BSc Physics with Astrophysics
Approving body and date of approval	Senate 15.10.2014

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	S1	PH30030	Quantum mechanics	C	6
				PH30108	Fluid dynamics in physics & astrophysics	C	6
				PH30109	Stars and Stellar Evolution	C	6

				PH30116	Data analysis & research methods for observational astronomy	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30028	Condensed matter physics 2	Optional Units: Select either 6 or 12 credits	6
				PH30031	Simulation techniques		6
				PH30035	Medical physics		6
				ED30005	Science education in practice		6
				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30101	General relativity	C	6
				PH30111	Galaxies and introduction to cosmology	C	6
				PH30056	Computational physics B	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30089	MPhys laboratory		6
				PH30110	Computational astrophysics		6
				PH30025	Mathematical methods	Optional Units: Select either 0 or 6 Credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				ZZ00001	DoS approved unit		6

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr 4	S1	PH40082	MPhys research placement	C	30	DEU
			S2	PH40112	Relativistic cosmology	C	6	
				PH40113	High energy astrophysics	C	6	
				PH40083	Advanced problem solving	C	6	
				PH40073	Mathematical physics	O: Select 12 credits	6	
				PH40084	Advanced quantum theory		6	

				PH40085	Nanoscience		6	
				PH40086	Photonics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 4	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.14 MPhys Physics with Astrophysics with Professional Placement

Programme code	USPH-AKM10
Programme title	MPhys Physics with Astrophysics with Professional Placement
Award type	Master of Science with Honours
Mode of Attendance	Thick Sandwich
Length	5 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AKB10 BSc Physics with Astrophysics with Placement
Approving body and date of approval	Senate 15.10.2014

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	

			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20040	Professional placement	C	60

Year 4							
Part	**Stage**	**Normal period of study**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	4	Yr4	S1	PH30030	Quantum mechanics	C	6
				PH30108	Fluid dynamics in physics & astrophysics	C	6
				PH30109	Stars and Stellar Evolution	C	6
				PH30116	Data analysis & research methods for observational astronomy	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30028	Condensed matter physics 2	Optional Units: Select either 6 or 12 credits	6
				PH30031	Simulation techniques		6

				PH30035	Medical physics		6
				ED30005	Science education in practice		6
				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30101	General relativity	C	6
				PH30111	Galaxies and introduction to cosmology	C	6
				PH30056	Computational physics B	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30089	MPhys laboratory		6
				PH30110	Computational astrophysics		6
				PH30025	Mathematical methods	Optional Units: Select either 0 or 6 Credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				ZZ00001	DoS approved unit		6

Year 5								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	5	Yr 5	S1	PH40081	MPhys research project	C	30	DEU
			S2	PH40112	Relativistic cosmology	C	6	
				PH40113	High energy astrophysics	C	6	
				PH40083	Advanced problem solving	C	6	
				PH40073	Mathematical physics	O: Select 12 credits	6	
				PH40084	Advanced quantum theory		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	0%	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 4	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 5	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.15 MPhys Physics with Astrophysics with Professional and Research Placements

Programme code	USPH-AKM11
Programme title	MPhys Physics with Astrophysics with Professional and Research Placements
Award type	Master of Science with Honours
Mode of Attendance	Thick Sandwich
Length	5 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH-AKB10 BSc Physics with Astrophysics with Placement
Approving body and date of approval	Senate 15.10.2014

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	

				PH10006	Electricity & magnetism	C	6	
				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH20040	Professional placement	C	60

Year 4							
Part	**Stage**	**Normal period of study**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	4	Yr4	S1	PH30030	Quantum mechanics	C	6
				PH30108	Fluid dynamics in physics & astrophysics	C	6
				PH30109	Stars and Stellar Evolution	C	6
				PH30116	Data analysis & research methods for observational astronomy	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30028	Condensed matter physics 2	Optional Units: Select either 6 or 12 credits	6
				PH30031	Simulation techniques		6
				PH30035	Medical physics		6

				ED30005	Science education in practice		6
				ZZ00001	DoS approved unit		6
			S2	PH30077	Electromagnetism 2	C	6
				PH30080	MPhys project/placement preparation	C	6
				PH30101	General relativity	C	6
				PH30111	Galaxies and introduction to cosmology	C	6
				PH30056	Computational physics B	Optional Units: Select either 0 or 6 credits (Students must select 6 or 12 credits in total from units PH30056, PH30089, PH30110 & PH30116)	6
				PH30089	MPhys laboratory		6
				PH30110	Computational astrophysics		6
				PH30025	Mathematical methods	Optional Units: Select either 0 or 6 Credits	6
				PH30032	Laser physics		6
				PH30078	Magnetism		3
				PH30079	Superconductivity		3
				PH30098	Networks		3
				ZZ00001	DoS approved unit		6

Year 5								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	5	Yr 5	S1	PH40082	MPhys research placement	C	30	DEU
			S2	PH40112	Relativistic cosmology	C	6	
				PH40113	High energy astrophysics	C	6	
				PH40083	Advanced problem solving	C	6	
				PH40073	Mathematical physics	O: Select 12 credits	6	
				PH40084	Advanced quantum theory		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	0%	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 4	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 5	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

9.16 MPhys Physics with Astrophysics with Study Year Abroad

Programme code	USPH-AAM10
Programme title	MPhys Physics with Astrophysics with Study Year Abroad
Award type	Master of Science with Honours
Mode of Attendance	Full time
Length	4 years
State if coexistent M-level programme	Yes
State any designated alternative programme(s)	USPH- AAB10 BSc Physics with Astrophysics with Study Year Abroad
Approving body and date of approval	Senate 15.10.2014

Year 1								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
1	1	Yr1	AY	PH10102	Experimental physics & computing 1	C	12	DEU
				PH10007	Mathematical methods for physics 1	C	12	DEU
			S1	PH10002	Properties of matter	C	6	
				PH10003	Electric circuits	C	3	
				PH10004	Classical mechanics	C	3	
				PH10005	Vibrations, waves & optics	C	6	
			S2	PH10001	Introduction to quantum physics	C	6	
				PH10006	Electricity & magnetism	C	6	

				PH10103	Relativity & astrophysics	C	6	

Year 2								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
2	2	Yr2	AY	PH20105	Experimental physics & computing 2	C	12	DEU
				PH20107	Mathematical methods for physics 2	C	12	DEU
			S1	PH20013	Quantum & atomic physics	C	6	
				PH20016	Particles, nuclei & stars	C	6	
				PH20029	Thermal physics	C	6	
			S2	PH20014	Electromagnetism 1	C	6	
				PH20017	Condensed matter physics 1	C	6	
				PH20104	Planets and exoplanets	C	6	

Year 3							
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**
2	3	Yr3	AY	PH30043	MPhys Year abroad	C	60

Year 4								
Part	**Stage**	**Normal period of study for this Mode**		**Unit code**	**Unit title**	**Unit status**	**Credits**	**DEU status**
3	4	Yr 4	S1	PH40081	MPhys research project	C	30	DEU
			S2	PH40112	Relativistic cosmology	C	6	
				PH40113	High energy astrophysics	C	6	
				PH40083	Advanced problem solving	C	6	
				PH40073	Mathematical physics	O: Select 12 credits	6	
				PH40084	Advanced quantum theory		6	
				PH40085	Nanoscience		6	
				PH40086	Photonics		6	

Assessment weightings and decision references		
Stage	**Weighting within programme**	**NFAAR-UG decisions reference** ***See NFAAR-UG information at*** **www.bath.ac.uk/publications/nfaar-ug-and-appendices/**
Stage 1	0 %	Main assessment: Appendix 15 Supplementary assessment: Appendix 16
Stage 2	16 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 3	34 %	Main assessment: Appendix 23 Supplementary assessment: Appendix 24
Stage 4	50 %	Main assessment: Appendix 27 Supplementary assessment: Appendix 28

10. Appendix B: Unit Catalogue

The online Unit and Programme Catalogues provide details of the structure of taught programmes offered by the University and of the content of their component units, for the current academic year and for previous years. Please see the website for dates when the Catalogue for the next academic year will be available online. The Catalogues also provide links to the University's assessment regulations, showing how these are applied to programmes of study.

Unit and Programme Catalogues: www.bath.ac.uk/catalogues

11. Appendix C: Assessment of Non-standard Units

11.1 PH10102: Experimental Physics and Computing 1

This unit consists of several distinct components including laboratory work (techniques, demonstrations, project work), PC laboratory sessions (including the use of a word processor for report writing, spreadsheets for graph plotting and data analysis and an introduction to programming in Python), supporting lectures (including error analysis, report writing and computer programming), and a poster presentation of a project. The assessment of these elements is given below.

	% of unit mark
Log-book record of work done in S1	25%
S1 Project Report	20%
Log-book record of work done in S2	22.5%
S2 Project Report	20%
PC Lab Coursework (S1 + S2)	10%
Poster Presentation on S2 Project	2.5%

11.2 PH20040: BSc Placement

Assessment of this unit is based on the following three assessment tasks:

1. A personal development programme completed during the placement year structured around the Personal Objectives and Learning Outcomes (POLO) forms and Goals, Objectives and Learning Forms (GOLF).
2. A placement visit carried out by a member of staff, during which the student will give an oral presentation about their placement;
3. A poster presentation given by the student at the Faculty of Science Professional Placement Poster Afternoon.

Through these three tasks students will be expected to demonstrate development leading to competence in the following areas:

- Managing themselves;
- Managing tasks;
- Communicating effectively;
- Teamwork;
- Applying knowledge;
- Using initiative.

Satisfactory overall performance is required across all three tasks for the student to pass the unit.

11.3 PH20042: BSc Year Abroad

Assessment of this unit is based on the following three assessment tasks:

1. A poster presentation given by the student;
2. A short report from the student on his/her experiences.
3. A transcript for the year from the host university.

Satisfactory overall performance is required across all three tasks for the student to pass the unit.

11.4 PH20105 Experimental Physics and Computing 2

The unit consists of several distinct components: Computer programming, Electronics, Physics Experiments and Projects. Students will have: 7 sessions of computer programming to introduce and develop skills in both C and MATLAB; 4 sessions of 1-day physics experiments covering a range of topics; 4 sessions of electronics experiments and a 4-session project.

Students maintain a scientific log book, recording details of experimental method and results to an appropriate standard. Students will submit 2 pieces of coursework for the computer programming; 4 short reports on the 1-day experiments and one laboratory report on their group project. Laboratory reports are critically assessed for their structure, presentation, scientific detail and analysis. Good presentation, structure and grammar and a reasonable display of initiative and analysis are expected as standard. Assessment is also carried out of students' logbooks and general performance, based on their attendance and an evaluation of the care and aptitude with which they perform the experimental work. Students will prepare and give an assessed presentation for the group project. Assessment is based upon the quality and clarity of the presentation and the student's response to questions on the work.

The assessment scheme for this unit is as follows:

		% of unit mark
One-day physics experiments	Short (2-page) report x4	22
One-day electronics experiments	Logbook/performance mark	18
Physics 4-week group project	Individual project report	20
	Group oral presentation, including questions	10
Computing	Coursework x2 (1st in C – 70%; 2nd in Matlab – 30%)	30

11.5 PH30024: Contemporary Physics

This unit is based around three seminars from speakers who will introduce topics of current research in Physics. Students research each area and carry out three assessment tasks: a journalistic report for the first topic, an oral presentation for the second, and a technical report for the third. The lecturers hold technical surgeries to answer any questions students may have. Each task is assessed by the lecturer concerned according to a set marking scheme, with marks for both scientific content and quality of writing and/or presentation. Each task is weighted equally.

11.6 PH30036: Final Year Project

In this unit students work (usually in pairs) on an extended project which spans both semesters. Each project has a supervisor, and an assessor is appointed for each student early in semester 1.

Students give an informal oral presentation on their project to their supervisor and assessor around week 11 of semester 1; this presentation forms 10% of the mark for the project unit.

Students write an extended report on their project towards the end of the second semester which is marked independently by the supervisor and assessor. There is also a 30 minute oral examination attended by the student, assessor and a chair. The assessor usually has the leading role in questioning students during the oral examination. The supervisor and assessor award marks for the project in the following way:

		Mark out of
Project Supervisor	General performance of the project	50
	Report	50
		100
Project Assessor	Report	50
	Student's performance at viva	50
		100

The moderation of marks occurs after the viva, led by the chair. The result will be an overall mark for the project, which normally falls between the marks of the supervisor and assessor. This mark will then be scaled to produce 90% of the unit mark, and combined with the mark gained from the presentation at the end of semester 1, in order to produce the overall mark for unit PH30036.

11.7 PH30043: MPhys Year Abroad

When assessing the performance of each student who has spent a study year abroad the examiners will take into consideration relevant factors, such as:

1. The number of courses taken, their level and composition.
2. The marks or grades that the student obtains.
3. The number of students and the rank order of the student in each class.

For example, the student may be given the same percentage mark as a student of the same rank order on a similar course at the University of Bath, normalised to ensure, for example, that a student 10th in a class of 20 abroad obtained a mark comparable with a student 25th in a class of 50 at Bath. In order to allow for varying failure rates between countries, "class size" may be equated with "number of students within the class who successfully completed the course". Students following courses entirely unlike any courses in the Department of Physics will be given special consideration, as will assessments of student research projects. A viva voce examination on some of the material studied abroad will normally be carried out on the student's return to Bath.

11.8 PH30072: Problem-solving Skills

This unit aims to enhance students' problem-solving and self-directed learning skills. Working in groups of around five or six, students first complete several preliminary problem solving assignments representing different phases of a space mission. These form the basis for the design project that the groups undertake during the remaining four weeks of the semester, based on separate specific mission statements for each group.

Assessment is based on a number of elements, as described below:

- Facilitator assessment of preliminary assignments (group mark with possible moderation for performance significantly above or below the average)) — 45%
- Two tests related to assignments (individual mark) — 7.5% x 2
- Mission design report (group mark with possible moderation) — 35%
- Presentation on mission report (group mark) — 5%

11.9 PH30080: MPhys project/placement preparation

This unit aims to provide an insight into the practice of research, and to provide a preparation for MPhys students' research projects or placements in year 4. The assessment for the unit consists of the following elements:

i. Analysis of a current "hot topic" in Physics, to be written in the style and format of a journal publication (40% of the unit marks)
ii. Research proposal for the research project or placement that the student will undertake in year 4 (60% of the unit marks).

11.10 PH30089: MPhys/MSci Laboratory

Students work singly or in pairs in this unit to perform two extended experiments; they prepare a written report on one of the two experiments performed, and an oral presentation on the other experiment.

The marks for the units are awarded as follows:

- Written report on one of the experiments performed. 50%
- Oral presentation on the other experiment performed. 35%
- General laboratory performance 15%

Reports are assessed on (a) scientific content, (b) style, layout and clarity of presentation, (c) critical sense and insight, (d) evidence of background reading (references, bibliography), and (e) ideas for extension of the experiment.

Laboratory performance is assessed on the basis of enthusiasm and commitment, time management and discipline, careful and effective use of equipment and resources and the maintenance of a well-kept log book.

11.11 PH30096: Industry Team Project

Industry team projects are carried out in teams of 4-6 students in response to real-life scientific problems posed by an industrial client. Students apply their knowledge of physics and mathematics to the tackling of these problems, which involve experimental investigation or modelling of an application of physics or mathematics.

The students are acquainted with the project brief by their industrial supervisor, and work on the project under the facilitation of an academic supervisor. An assessor is appointed for each project early in semester 1.

Students write an individual report on their project towards the end of the second semester, and this is marked independently by the academic supervisor and assessor. There are also two oral presentations given by the whole team; one around the end of semester 1, and another at the end of the semester 2 assessment period. Each team also provides an executive summary of the project outcomes to the industrial supervisor.

The unit is assessed as follows:

	Marked by	**%**
General performance	Academic supervisor	25
Mid-term oral presentation	Assessor	10
Final oral presentation	Assessor	15
Individual project report	Academic supervisor	25
Individual project report	Assessor	25

In assigning the general performance mark, the academic supervisor will take into account feedback received from the industrial supervisor on the overall team/student performance, performance in the oral presentations, and the executive summary.

11.12 PH30099: Communicating Physics Project

Communicating physics projects are carried out in teams of 3-4 students. A pre-prepared preliminary activity (Activity 1) enables the students to gain some early experience of outreach (including evaluation techniques and reflective practice/writing), and to build their confidence. The summative assessment of the unit is focussed around Activities 2 and 3: two public engagement activities that the teams design, prepare and deliver. These activities focus on an area of the Department's research, and each team is provided with an academic 'mentor' to provide support and help.

The unit is assessed as follows:

Assessment	Brief description	Weighting
Portfolio 1	Written e-portfolio on Activity 1, comprising a brief descriptive and longer reflective part.	**0% - formative**
Written reports	Two written reports (one technical, and the other journalistic) on the research topic area you are focussing on for Activities 2 & 3.	**25%**
Ideas 'pitch'	Group oral presentation to the rest of the class on plans for Activities 2 & 3, including aims & objectives, intended audience, location, logistics & practicalities, team organisation, evaluation methods, and details of the relevant physics.	**10% (staff) + 10% (peer)**
Portfolio 2	Full-length e-portfolio on Activities 2 & 3	**40%**
General performance	Assessment of each individual's contribution to the group projects, and to seminars, discussions and tasks throughout the unit.	**5% (staff) + 10% (peer)**

11.13 PH40081: MPhys Research Project/PH40082: MPhys Research Placement

Both of these units are assessed in the same way. The supervisor (whether within the department or at the placement organisation) assesses the student's performance during the course of the project or placement. Two assessors are appointed for each student early in semester 1.

Students write a report in the style and format of a journal paper on their research project or placement, and give an assessed oral presentation at the MPhys Conference. There is also a 30 minute oral examination attended by the student and the assessors.

Marks are assigned as follows:

i. Supervisor's marks (20%): The supervisor assesses qualities such as the student's industry and motivation, time management skills, innovation and initiative, and level of technical skills (e.g. experimental/computational).

ii. Report (15%): The assessors assign marks for the quality of presentation of the report.
iii. Oral presentation (10%): The assessors assign marks for the quality of presentation of the oral presentation.
iv. “The physics” (55%): At the end of the viva, the assessors assign marks for the level of understanding and analysis demonstrated by the student in the report, the oral presentation and the viva.

11.14 PH40083: Advanced Problem Solving

This unit aims to provide an opportunity for students to solve a wide range of problems by calling on knowledge from areas which are generally taught separately in the Physics curriculum. The unit aims to develop analytical problem solving skills and a deeper level of overall understanding. Assessment is based on the following elements:

- Coursework (50% of the unit marks)
- Exam (50% of the unit marks)

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