

Programme Regulations: 2024/25

Programme Titles:

Degree of Bachelor of Science with Honours in Physics with Astrophysics - UCAS Code: F3F5

Degree of Bachelor of Science with Honours in Physics with Astrophysics with Placement Year - Code: 1557U

Degree of Bachelor of Science with Honours in Physics with Astrophysics with International Study Year – Code 1843U

Notes

(i) These programme regulations should be read in conjunction with the University's Taught programme Regulations.

(ii) All optional modules are offered subject to the constraints of the timetable and to any restrictions on the number of students who may be taught on a particular module. Not all modules may be offered in all years and they are listed subject to availability.

(iii) Unless otherwise stated under 'Type', modules are not core.

(iv) A compulsory module is a module which a student is required to study.

(v) A core module is a module which a student must pass, and in which a fail mark may neither be carried nor compensated; such modules are designated by the board of studies as essential for progression to a further stage of the programme or for study in a further module.

(vi) All modules are delivered in Linear mode unless stated otherwise as Block, eLearning or distance learning.

(vii) Students are not recruited to 1557U. Rather a F3F5 candidate may transfer to 1557U by the end of week 5 of Semester 2 of Stage 2, subject to the agreement of the Degree Programme Director.

1. Stage 1

All candidates shall take the following compulsory modules:

| Code | Descriptive Title | Total Credits | Credits Sem 1 | Credits Sem 2 | Level | Type | Subject |
|---------|---|---------------|---------------|---------------|-------|------|---------|
| PHY1020 | Dynamics | 10 | 0 | 10 | 4 | | |
| PHY1021 | Introductory Astrophysics | 10 | 10 | 0 | 4 | | |
| PHY1024 | Introductory Electromagnetism | 10 | 0 | 10 | 4 | | |
| PHY1025 | Introductory Quantum Mechanics | 10 | 0 | 10 | 4 | | |
| PHY1030 | Laboratory Physics 1 | 20 | 10 | 10 | 4 | | |
| PHY1037 | Vibrations, Waves & AC Theory & Introduction to Solid State Materials | 20 | 10 | 10 | 4 | | |
| PHY1038 | Introductory Algebra | 10 | 10 | 0 | 4 | | |
| PHY1040 | Introductory Calculus and Differential Equations | 20 | 20 | 0 | 4 | | |
| PHY1041 | Multivariable Calculus | 10 | 0 | 10 | 4 | | |
| PHY1999 | Academic Skills and Tutoring (Physics) | 0 | 0 | 0 | 4 | | |

2. Stage 2

All candidates shall take the following compulsory modules:

| Code | Descriptive Title | Total Credits | Credits Sem 1 | Credits Sem 2 | Level | Type | Subject |
|---------|---------------------------------|---------------|---------------|---------------|-------|------|---------|
| PHY2020 | Principles of Quantum Mechanics | 10 | 10 | 0 | 5 | | |

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|---------|---|----|----|----|---|--|--|
| PHY2021 | Principles of Electromagnetism | 10 | 0 | 10 | 5 | | |
| PHY2024 | Principles of Materials & Solid-State Physics | 10 | 0 | 10 | 5 | | |
| PHY2026 | Vector Calculus | 10 | 10 | 0 | 5 | | |
| PHY2029 | Introduction to Observational Astronomy | 10 | 0 | 10 | 5 | | |
| PHY2031 | Differential Equations Transforms and Waves | 10 | 0 | 10 | 5 | | |
| PHY2036 | Thermodynamics & Statistical Mechanics | 20 | 10 | 10 | 5 | | |
| PHY2032 | Optics | 10 | 10 | 0 | 5 | | |
| PHY2034 | Computational Methods & Professional Skills for Theoretical Physics | 10 | 10 | 0 | 5 | | |
| PHY2033 | Fluid Dynamics I | 10 | 0 | 10 | 5 | | |
| PHY2039 | Scientific Computation with Python | 10 | 10 | 0 | 5 | | |

3. Progression

To progress to Stage 3 of the BSc degree programme, candidates are required to obtain an average over all modules taken at Stage 2 of at least 40.

4. Year 3 (Intercalating Year)

(a) Careers Placement (1557U)

On completion of Stage 2 and before entering Stage 3, candidates may as part of their studies for the degree spend a year in a placement with an approved organisation. Permission to undertake a placement is subject to the approval of the Degree Programme Director. Students who are required to re-sit their Stage 2 assessment must delay the start of their placement until they have done so. Students who fail Stage 2 may not complete a placement year.

| <i>Code</i> | <i>Descriptive title</i> | <i>Total Credits</i> | <i>Credits Sem 1</i> | <i>Credits Sem 2</i> | <i>Credits Sem 3</i> | <i>Level</i> | <i>Type</i> | <i>Mode</i> |
|-------------|--------------------------------------|----------------------|----------------------|----------------------|----------------------|--------------|-------------|-------------|
| NCL3000 | Career Service Placement Year Module | 120 | 60 | 60 | 0 | 6 | | |

(b) International Study Year (1843U)

On completion of Stage 2 and before entering Stage 3, candidates may spend the equivalent of one academic year abroad at an appropriate exchange partner institution. Permission to undertake a year abroad is subject to the approval of the Degree Programme Director. Students who are required to re-sit their Stage 2 assessment must delay the start of their year abroad until they have done so. Students who fail Stage 2 may not complete a year abroad.

| <i>Code</i> | <i>Descriptive title</i> | <i>Total Credits</i> | <i>Credits Sem 1</i> | <i>Credits Sem 2</i> | <i>Level</i> | <i>Type</i> | <i>Mode</i> |
|-------------|---------------------------------|----------------------|----------------------|----------------------|--------------|-------------|-------------|
| ISY3000 | International Study Year Module | 120 | 60 | 60 | 6 | | |

5. Stage 3

(a) All candidates shall take the following compulsory modules:

| Code | Descriptive Title | Total Credits | Credits Sem 1 | Credits Sem 2 | Level | Type | Subject |
|---------|---|---------------|---------------|---------------|-------|------|---------|
| PHY3020 | Advanced Quantum Mechanics | 10 | 10 | 0 | 6 | | |
| PHY3024 | Atoms, Molecules, and Nuclei | 10 | 0 | 10 | 6 | | |
| PHY3022 | Relativity and Fundamental Particles | 10 | 10 | 0 | 6 | | |
| PHY3023 | Advanced Materials & Solid-State Physics | 10 | 10 | 0 | 6 | | |
| PHY3025 | Group Project | 10 | 10 | 0 | 6 | | |
| PHY3033 | Advanced Astronomy | 10 | 10 | 0 | 6 | | |
| PHY3034 | Theoretical Project | 20 | 0 | 20 | 6 | Core | |
| PHY3040 | Stellar Structure & Evolution | 10 | 10 | 0 | 6 | | |
| PHY3042 | Cosmology | 10 | 0 | 10 | 6 | | |
| PHY3043 | Radiative Transfer and High Energy Astrophysics | 10 | 0 | 10 | 6 | | |

(b) All candidates shall choose one optional module from the following list:

| Code | Descriptive Title | Total Credits | Credits Sem 1 | Credits Sem 2 | Level | Type | Subject |
|---------|---|---------------|---------------|---------------|-------|------|---------|
| CEG3707 | Geohazards & Deformation of the Earth | 10 | 10 | 0 | 6 | | |
| PHY3029 | Variational Methods & Lagrangian Dynamics | 10 | 0 | 10 | 6 | | |
| PHY3032 | Advanced Electromagnetism | 10 | 0 | 10 | 6 | | |
| PHY3036 | Partial Differential Equations | 10 | 0 | 10 | 6 | | |
| PHY3037 | Photonics | 10 | 0 | 10 | 6 | | |
| PHY3041 | Fluid Dynamics II | 10 | 10 | 0 | 6 | | |
| PHY3047 | Instabilities | 10 | 10 | 0 | 6 | | |
| PHY3048 | Mathematical Biology | 10 | 0 | 10 | 6 | | |
| PHY3035 | Methods for Differential Equations | 10 | 10 | 0 | 6 | | |

5. Assessment methods

Details of the assessment pattern for each module are explained in the module outline.

6. Degree classification

Candidates will be assessed for the degree classification on the basis of all the modules taken at Stages 2 and 3 with the weightings of the Stages being 1:3 for Stage 2 and Stage 3 respectively.