Programme Title: MSc Physics (Euromasters)

Programme Specification

<table>
<thead>
<tr>
<th>Awarding Body/Institution</th>
<th>Queen Mary University of London</th>
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<tbody>
<tr>
<td>Teaching Institution</td>
<td>Queen Mary University of London</td>
</tr>
<tr>
<td>Name of Final Award and Programme Title</td>
<td>MSc Physics (Euromasters)</td>
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<tr>
<td>Name of Interim Award(s)</td>
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<tr>
<td>Duration of Study / Period of Registration</td>
<td>Two Years FT</td>
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<tr>
<td>QM Programme Code / UCAS Code(s)</td>
<td>F355</td>
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<tr>
<td>QAA Benchmark Group</td>
<td></td>
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<tr>
<td>FHEQ Level of Award</td>
<td>Level 7</td>
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<tr>
<td>Programme Accredited by</td>
<td>IoP</td>
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<tr>
<td>Date Programme Specification Approved</td>
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<tr>
<td>Responsible School / Institute</td>
<td>School of Physics and Astronomy</td>
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Schools which will also be involved in teaching part of the programme

Institution(s) other than Queen Mary that will provide some teaching for the programme

Kings College London, Royal Holloway and University College London

Programme Outline

This programme benefits from teaching across the universities of the South East Physics Network (SEPnet), with a strong emphasis on research-based learning. Delivered across two academic years with an extended project in the second year, this programme provides excellent training in higher level academic research.

You will deepen your understanding of a chosen branch of contemporary physics or astrophysics, choosing a speciality from a wide variety of themes at the forefront of both fundamental and applied physics research. The programme consists of taught modules and an in-depth research project, leaving you well prepared for further doctoral-level study and research. There are two pathways in the programme: Physics and Astrophysics.

Aims of the Programme

1. To provide an understanding of a chosen branch of contemporary physics, covering advanced concepts and techniques, leaving students well prepared for further doctoral level study and research.
2. To provide a solid foundation for a successful career as a highly-qualified physicist.
3. To provide opportunities for students to develop skills transferable to a wide range of other careers.
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4. To enable students to further develop skills in problem solving and critical and quantitative analysis in physics beyond those acquired in undergraduate study.
5. To provide active participation in contemporary physics research through completion of an extended project under the guidance of a supervisor at the forefront of research in the relative subject area.
6. To help students develop the sense of independence and experience of a scientific researcher.
7. To enable students to develop research skills by working within a dynamic internationally known experimental, observational or theoretical research group.
8. To provide students with a friendly and supportive environment in which to enrich their learning experience through interaction with active research staff and other students.
9. To enable students to prepare and present research-level seminars on advanced physics topics.
10. To provide opportunities to carry out research leading to work of a publishable standard.

What Will You Be Expected to Achieve?

Students successfully completing the programme will:

<table>
<thead>
<tr>
<th>Academic Content:</th>
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<tbody>
<tr>
<td>A1</td>
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<td>A2</td>
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<td>A3</td>
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<td>A4</td>
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<tr>
<th>Disciplinary Skills - able to:</th>
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<tbody>
<tr>
<td>B1</td>
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<td>B2</td>
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<tr>
<td>B3</td>
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<td>B4</td>
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<table>
<thead>
<tr>
<th>Attributes:</th>
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<tbody>
<tr>
<td>C1</td>
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<tr>
<td>C2</td>
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<tbody>
<tr>
<td>C3</td>
<td>Connect ideas and information within their field of study</td>
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<tr>
<td>C4</td>
<td>Critically evaluate the reliability of different sources of information</td>
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<tr>
<td>C5</td>
<td>Acquire substantial bodies of new knowledge</td>
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How Will You Learn?

The majority of taught modules consist of three hour hours of teaching per week, either as three hours of lectures or two hours of lectures plus a one hour tutorial. Some modules incorporate substantial computer laboratory sessions.

The project is undertaken within Condensed Matter Physics, Particle Physics, Theoretical Physics or Astrophysics and uses computational, theoretical or laboratory methods as appropriate and may well involve additional, technical training. In all cases the project involves weekly one to one meetings with the supervisor.

How Will You Be Assessed?

The majority of taught modules are assessed by a final examination (typically 90% of the final mark) and by coursework (typically 10% of the final mark), although individual module mark schemes may vary from this. The compulsory MSc Physics Euromasters project is assessed by the final written report (80% of the final mark) and a student presentation and oral examination (20% of the final mark).

How is the Programme Structured?

Please specify the full time and part time programme diets (if appropriate).

NOTE: Students choosing to leave the programme after Year One, may be awarded the PGDip Physics (EuroMasters).

Year one:
Eight taught modules to the total of 120 credits, taken from any of the 15 credit modules below:

- INK7022P Mathematical Methods for Theoretical Physics
- INK7020P Lie Groups and Lie Algebras
- INR7007P Statistical Mechanics
- SPA7013P Phase Transitions
- INU7001P Advanced Quantum Theory
- INU7067P Advanced Topics in Statistical Mechanics
- SPA7018P Relativistic Waves & Quantum Fields
- SPA7001P Advanced Quantum Field Theory
- SPA7024P Functional Methods in Quantum Field Theory
- SPA7027P Differential Geometry in Theoretical Physics
- INU7071P Galaxy Dynamics, Formation and Evolution
- INU7056P Advanced Physical Cosmology
- INU7003P Atom and Photon Physics
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INK7048P Advanced Photonics
INU7022P Quantum Computation and Communication
INR7015P Quantum Electronics of Nanostructures
INU7014P Molecular Physics
INK7017P Particle Physics
INK7003P Particle Accelerator Physics
INK7066P Modelling Quantum Many-Body Systems
INU7016P Order and Excitations in Condensed Matter
INK7037P Theoretical Treatments of Nano-systems
INK7012P Physics at the Nanoscale
SPA7008P Electronic Structure Methods
INK7008P Superfluids, Condensates and Superconductors
INK7067P Advanced Condensed Matter
INK7032P Standard Model Physics and Beyond
INK7002P Nuclear Magnetic Resonance
INK7014P Statistical Data Analysis
INK7034P String Theory and Branes
INK7054P Supersymmetry
SPA7023P Stellar Structure and Evolution
SPA7005P Cosmology
SPA7019P Relativity and Gravitation
SPA7006P Electromagnetic Radiation in Astrophysics
INU7045P Planetary Atmospheres
INU7008P Solar Physics
SPA7022P Solar System
SPA7010P The Galaxy
SPA7004P Astrophysical Plasmas
INU7026P Space Plasma and Magnetospheric Physics
SPA7009P Extrasolar Planets & Astrophysical Discs
INK7051P Environmental Remote Sensing
INU7013P Molecular Biophysics
INK7068P Cellular Biophysics
INK7001P Theory of Complex Networks
INK7002P Equilibrium Analysis of Complex Systems
INK7004P Dynamical Analysis of Complex Systems
INK7005P Mathematical Biology
INK7003P Elements of Statistical Learning
SPA7028P Advanced Cosmology
SPA7029P Collider Physics
SPA7031P Supersymmetric Methods in Theoretical Physics
INK7069P Dark Matter and Dark Energy
INU7018P Computer Simulation in Condensed Matter
Plus any new level 7 modules belonging to SPA and the intercollegiate programme.

Year two:
A total of 120 credits, consisting of:

SPA7026P Physics (Euromasters) Project

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Academic Year of Study  FT - Year 1

<table>
<thead>
<tr>
<th>Module Title</th>
<th>Module Code</th>
<th>Credits</th>
<th>Level</th>
<th>Module Selection Status</th>
<th>Academic Year of Study</th>
<th>Semester</th>
</tr>
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Queen Mary
University of London
What Are the Entry Requirements?

Entry to the Programme requires a minimum of an upper second honours degree at Bachelors level in physics, or its equivalent. Direct entry to the second year of the programme requires students to have achieved the equivalent of a postgraduate diploma in physics at a SEPnet partner.

How Do We Listen and Act on Your Feedback?

The Staff-Student Liaison Committee provides a formal means of communication and discussion between Schools and its students. The committee consists of student representatives from each year in the school/institute together with appropriate representation from staff within the school/institute. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Staff-Student Liaison Committees meet regularly throughout the year. Each school operates a Learning and Teaching Committee, or equivalent, which advises the School/Institute Director of Taught Programmes on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in this Committee’s work in a number of ways, such as through student membership, or consideration of student surveys. All schools operate an Annual Programme Review of their taught undergraduate and postgraduate provision. The process is normally organised at a School-level basis with the Head of School, or equivalent, responsible for the completion of the school’s Annual Programme Reviews. Schools/institutes are required to produce a separate Annual Programme Review for undergraduate programmes and for postgraduate taught programmes using the relevant Undergraduate or Postgraduate Annual Programme Review pro-forma. Students’ views are considered in this process through analysis of the NSS and module evaluations.

Academic Support

The students will be allocated an academic advisor as well as a project supervisor. Weekly project supervision meetings are expected.

Programme-specific Rules and Facts

(Proposed regulatory change):

Where a student misses the progression hurdle by 30 or fewer credits due to approved extenuating circumstances or because late summer resits were not offered, the SEB may apply its discretion and, if it deems it appropriate, permit the student to progress.
Specific Support for Disabled Students

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites. Students can access advice, guidance and support in the following areas:

- Finding out if you have a specific learning difficulty like dyslexia
- Applying for funding through the Disabled Students’ Allowance (DSA)
- Arranging DSA assessments of need
- Special arrangements in examinations
- Accessing loaned equipment (e.g. digital recorders)
- Specialist one-to-one "study skills" tuition
- Ensuring access to course materials in alternative formats (e.g. Braille)
- Providing educational support workers (e.g. note-takers, readers, library assistants)
- Mentoring support for students with mental health issues and conditions on the autistic spectrum.

Links With Employers, Placement Opportunities and Transferable Skills

The School has a dedicated SEPnet Employer Engagement Officer who provides links between students and industry, arranging work placement opportunities.

Programme Specification Approval

| Person completing Programme Specification | Dr Rodolfo Russo |
| Person responsible for management of programme | Dr Rodolfo Russo |
| Date Programme Specification produced/amended by School Learning and Teaching Committee | 11 Jan 2017 |
| Date Programme Specification approved by Taught Programmes Board | |