Queen Mary University of London

Programme Specification (PG)

Awarding body / institution:	Queen Mary University of London
Teaching institution:	Queen Mary University of London
Name of final award and programme title:	MSc Physics (EuroMasters)
Name of interim award(s):	PGCert/PGDip
Duration of study / period of registration:	Two years FT
Queen Mary programme code(s):	PMMF-QMPHYS1
QAA Benchmark Group:	
FHEQ Level of Award:	Level 7
Programme accredited by:	
Date Programme Specification approved:	
Responsible School / Institute:	School of Physical and Chemical Sciences

Schools / Institutes which will also be involved in teaching part of the programme:

Collaborative institution(s) / organisation(s) involved in delivering the programme:

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. Spanning two academic years, the programme includes an extended research project in the second year, providing excellent training in advanced academic research.

Students will deepen their knowledge in a selected branch of contemporary physics or astrophysics, choosing a specialty from a wide range of cutting-edge themes in both fundamental and applied physics research. The programme consists of taught modules and a comprehensive research project, equipping students for further doctoral-level study and research. There are three pathways available within the programme: Theoretical Physics, Particle Physics, and Astrophysics.

Aims of the programme

1. To provide an in-depth understanding of a chosen branch of contemporary physics, covering advanced concepts and techniques, and equipping students for further doctoral level study and research.
2. To establish a solid foundation for a successful career as a highly qualified physicist.
3. To offer opportunities for students to develop skills transferable to a wide range of other careers.

4. To advance students' abilities in problem-solving, as well as critical and quantitative analysis in physics, building on skills acquired in undergraduate study.
5. To facilitate active participation in contemporary physics research through the completion of an extended project, guided by a supervisor at the forefront of research in the relevant field.
6. To foster a sense of independence and the experience of working as a scientific researcher.
7. To develop students' research skills within a dynamic, internationally recognized experimental, observational, or theoretical research group.
8. To create a friendly and supportive environment where students can enrich their learning experience through interactions with active research staff and fellow students.
9. To prepare students to develop and deliver research-level seminars on advanced physics topics.
10. To provide opportunities for conducting research that may lead to work of publishable quality.

What will you be expected to achieve?

Students successfully completing the programme will achieve the outcomes listed below.

Academic Content:	
A 1	Know the findamental laws and physical principles, along with their applicaions in specific areas of physics
A 2	Manage their own research, making use of journal articles and other primary sources
A 3	Communicate complex scietific ideas, concisely, accurately and informatively
A 4	Use mathematical analysis to model physical beaaviour and iterpret the mathematical descriptions of physical phenomena.

Disciplinary Skills - able to:	
B 1	To solve advanced problems in physics using appropriate mathematical tools (to order of magnitude or more precisely as appropriate)
B 2	To plan and execute an investigation and to critically analyse the results, drawing valid conclusions.
B 3	To prepare a detailed technical report on their project and compare their results with published data ,expected outcomes or theoretical predictions.
B 4	To identify relevant physical principles and translate problems into mathematical statements.

Attributes:	
C 1	Acquire and apply knowledge in a rigorous way

C 2	Explain and argue clearly and concisely
C 3	Connect ideas and information within their field of study
C 4	Critically evaluate the reliability of different sources of information
C 5	Acquire substantial bodies of new knowledge

How will you learn?

Most taught modules consist of three hours of instruction per week, delivered either as three hours of lectures or as two hours of lectures plus a one-hour tutorial. Certain modules also include substantial computer laboratory sessions.

The project is undertaken within Condensed Matter Physics, Particle Physics, Theoretical Physics, or Astrophysics. Depending on the topic, students may employ computational, theoretical, or laboratory methods, which may include additional technical training as needed. The project includes weekly one-on-one meetings with the supervisor to provide personalized guidance and support.

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 structure of the programme diets for all variants of the programme (e.g. full-time, part-time - if applicable). The description should be sufficiently detailed to fully define the structure of the diet.

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:

SPA7037P Deep Learning
SPA7018P Relativistic Waves & Quantum Fields
SPA7001P Advanced Quantum Field Theory
SPA7027P Differential Geometry in Theoretical Physics
SPA7023P Stellar Structure and Evolution
SPA7019P Relativity and Gravitation
SPA7036P Radiative Transfer and Astrochemistry
SPA7010P The Galaxy
SPA7004P Astrophysical Plasmas
SPA7009P Extrasolar Planets & Astrophysical Discs

SPA7028P Advanced Cosmology
SPA7031P Supersymmetric Methods in Theoretical Physics
SPA7032P Introduction to Strings and Branes
SPA7038P Practical Astrophysics
SPC721P Research Methods
CHE411 Nanomaterials

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

SPA7026P Physics (Euromasters) Project

Academic Year of Study FT - Year 1

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Relativistic Waves & Quantum Fields	SPA7018P	15	7	Elective	1	Semester 1
Differential Geometry in Theoretical Physics	SPA7027P	15	7	Elective	1	Semester 1
Relativity and Gravitation	SPA7019P	15	7	Elective	1	Semester 1
Stellar Structure and Evolution	SPA7023P	15	7	Elective	1	Semester 1
Radiative Transfer and Astrochemistry	SPA7036P	15	7	Elective	1	Semester 1
Advanced Cosmology	SPA7028P	15	7	Elective	1	Semester 1
Research Methods	SPC721P	15	7	Elective	1	Semester 1
Nanomaterials	CHE411	15	7	Elective	1	Semester 1
Advanced Quantum Field Theory	SPA7001P	15	7	Elective	1	Semester 2
Astrophysical Plasmas	SPA7004P	15	7	Elective	1	Semester 2
Extrasolar Planets & Astrophysical Discs	SPA7009P	15	7	Elective	1	Semester 2
The Galaxy	SPA7010P	15	7	Elective	1	Semester 2
Supersymmetric Methods in Theoretical Physics	SPA7031P	15	7	Elective	1	Semester 2

Programme Title: MSc Physics (EuroMasters)

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester
Introduction to Strings and Branes	SPA7032P	15	7	Elective	1	Semester 2
Deep Learning	SPA7037P	15	7	Elective	1	Semester 2
Practical Astrophysics	SPA7038P	15	7	Elective	1	Semester 2
Physics (Euromasters) Project	SPA7026P	120	7	Core	2	Semesters 1 & 2

What are the entry requirements?

Entry to the Programme requires a minimum of a lower second class 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 will the quality of the programme be managed and enhanced? How do we listen to 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.

What academic support is available?

The students will be allocated an academic advisor as well as a project supervisor. Weekly project supervision meetings are expected. Additionally the School has a dedicated Student Support Officer who is available to discuss any student related problem. The School runs an open door policy which encourages the students to come and talk to their advisor, other academics or the dedicated Student Support Officer.

Programme-specific rules and facts

MSc Physics (Euromasters) students must pass six out of eight taught modules and two failures can be condoned down to 40%, as long as the average achieved across all modules is 50% or greater.

How inclusive is the programme for all students, including those with disabilities?

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 David Vegh
Person responsible for management of programme:	Dr David Vegh
Date Programme Specification produced / amended by School / Institute Learning and Teaching Committee:	8/11/2024
Date Programme Specification approved by Taught Programmes Board:	