Medical Physiology

Final award	MSc
Intermediate awards available	PgCert, PgDip
UCAS code	N/A
Details of professional body accreditation	N/A
Relevant QAA Benchmark statements	Medicine, Biosciences
Date specification last up-dated	March 2010

Profile

The summary - programme advertising leaflet

Programme content

This Masters programme in Medical Physiology is an unique opportunity to develop knowledge, understanding, research and practical skills in medical/clinical aspects of physiology including the necessary skills to undertake individual and collaborative research.

This modular programme aims to produce postgraduate students with a sound critical knowledge of both the practical and theoretical aspects of the physiology of systems of the body including concepts and mechanisms from cellular to whole organs in both health and disease. Special emphasis is placed on learning research and instrumentation techniques to investigate the human body.

All students take three specialist subject modules and a core module in research skills. To complete the Master's programme, students undertake an individual research project.

- Advanced Cellular Pharmacology and Physiology
- Research Skills for Pharmacology and Physiology
- Clinical Instrumentation & Diagnostic Physiology
- Health and Disease of Physiological Systems
- Research Project

MSc in Medical Physiology at UEL

- This programme develops a critical understanding of the physiology and pharmacology of a wide range of body systems in health and disease
- This programme allows students to understand the causes and diagnosis of disease
- This programme highlights the importance of nutrition in health and disease
- Students on this programme will use and learn a wide range of techniques and instrumentation (from cellular to whole body) to investigate the body
- This programme emphasises the normal values of a wide range of tissue variables and how measurement of changes in these are useful in diagnosis

- This programme is unique in explaining how medical instruments work and are used to collect and analyse biological signals
- This programme enables students to learn the practical and theoretical skills of basic life support and obtain a first aid certificate
- The programme is supported by a newly equipped Physiology, Pharmacology, Sports and Bioscience laboratories.
- Specialist lecturers from hospitals and other universities are invited to give lectures to enhance the student experience
- Transferable and research skills and practical training are an integral part of the MSc and PGD programme.
- Much of the taught component is available on UELPlus allowing students to study at their own pace.

Admission requirements

For entry to this programme, students are required to have a minimum of a second class undergraduate honours degree from a UK university in a relevant subject area e.g. Physiology, Pharmacology, Sports Science, Applied Biology, Toxicology or an equivalent qualification and/or experience. All students admitted to the University are required to have GCSE at grade C in maths and English (or equivalent). For overseas students there is a requirement for demonstrated evidence of proficiency in written and spoken English. In the case of applicants whose first language is not English, then IELTS score of 6.5 or TOEFL score of 650 (or equivalent) is required. International qualifications will be checked for appropriate matriculation to UK Higher Education postgraduate programmes. Applicants whose qualifications do not conform to these criteria may be admitted to the programme at the admission tutors discretion, only if they are likely to be successful in gaining an award. This will normally involve an interview. Students that apply to enter stages of the programme may be admitted through normal Accreditation of Experiential Learning (AEL) or Accreditation of Certificated Learning (ACL) processes, or through an approved articulation agreement. Therefore such applicants must be able to demonstrate and evidence that they have the required learning outcomes as listed in the modules for which they are seeking exemption.

Programme structure

- One year full time or two years part time for MSc and PG Diploma (PG Diploma only available as an intermediate award).
- One year part time for PG Certificate (only available as an intermediate award).
- Part-time MSc students study Research skills for Pharmacology & Physiology in semester A and Clinical Instrumentation & Diagnostic Physiology in semester B of the first year. These are followed by Advanced Cellular Pharmacology & Physiology in semester A of year 2 and Health and Disease of Physiological Systems in semester B. The project would be taken in the summer period.
- Taught modules are delivered in a semesterised system, with semesters running from September to January and February to June. The research projects will run through the summer period

Learning environment

- Learning is encouraged through participation in a wide variety of activities including lectures, seminars, workshops, laboratory-based practicals, web-based learning etc.
- In addition all students are expected to read extensively in their own time. Much of this reading will be directed.
- Success at university depends on developing your ability to study independently using library resources, Computer-assisted learning (CAL), handouts and web-based study activities.
- These skills are reinforced in modules in the first semester. These enable us to assess your independent learning needs at university, and also help to develop those transferable skills so important in working life. The skills with which you start the programme may vary considerably between individuals, so your personal tutor will direct your skills development work on an individual basis.

Assessment

- Students are assessed in practical work and theory.
- In taught modules 40% or 50% of the module mark is derived from coursework during the semester (this can take a variety of forms including laboratory work, data analysis, essays, oral presentations etc.) and the remaining 60% or 50% from written theory examinations at the end of the semester.
- The Research skills module is assessed by laboratory skills exam (50%) and a research proposal (50%).
- The Research Project is assessed mainly by the final written report, with contributions from a poster presentation and portfolio.
- The pass mark for all modules is 50%.

Relevance to work/profession

- The curriculum is tailored to research and health related employment.
- Emphasis is placed on the development of skills as well as academic knowledge.
- Part-time students in relevant employment may be permitted to carry out research projects at their place of work.

Thesis/Dissertation/project work

- Project work is an essential component of a Masters degree programme and one that most students enjoy. Small projects and group work exercises feature throughout the programme.
- The individual research project is the culmination of the programme makes up 33% of the programme.
- Project work encourages students to show initiative in their individual work under supervision, using appropriate analytical techniques to generate and interpret new data.
- Dissertation preparation develops literature researching, presentation and written communication skills essential in professional life.

Added value

- Extensive personal support throughout the programme.

- Staff with extensive experience of teaching students from a wide range of backgrounds.
- Sound practical as well as academic training.
- Access to modern research facilities.
- Effective careers advice and support available.

Your future career

Graduates trained in Medical Physiology will find their training applicable to advanced research in both health and disease conditions using both invasive and non-invasive techniques on humans. It will enable them to consider careers in the NHS after further training. By learning an extensive and wide range of experimental techniques graduates will be able to apply for a wider range of jobs in the Biomedical Sciences. Knowledge of a wide range of instruments will enable graduates to also apply for careers in Marketing/sales of medical equipment. The programme will therefore be of interest to both domestic and international students. This degree can also be utilised by those students who have less specific career aspirations but enjoy the challenge of scientific study at this advanced level.

How we support you

The School of Health and Bioscience provides immediate contact with University support systems.

- When you arrive, you will be allocated a Personal Tutor (a member of staff familiar with your degree). You will see your Tutor at regular intervals to discuss progress and life in general. Your tutor will be responsible for directing your skills development work, by directing you to courses which will tackle any areas in which your academic background may be deficient.
- The programme tutor may also give support on academic matters, and advice about other specialist help available through the University.
- The School also has a Help Desk to provide administrative assistance and advise how to get the right help.
- Internet homepages are used by many staff to support their teaching and your learning.
- Lecture and practical files, quizzes, mark summaries and much more is now available for several modules via UELplus

Throughout the programme you will find a number of scheduled support activities devoted to specific aspects e.g. how to write your project report, or more general aspects such as careers. Support for students on a University level includes:

- Libraries and Learning Resource Centres
- Careers advice and information · Counselling and Advice for practical problems
- Health Centre with a nurse regularly on duty.
- Language tuition
- Dyslexia support
- Accommodation

Bonus factors

- A small and friendly campus.
- A School with staff and facilities to match to the wide interests and backgrounds of students.
- Good connections with NHS and other employers.
- Multiplex cinema, theatre, supermarkets, high street shops, restaurants, cafes and pubs a few minutes walk away in Stratford - a major site of new development in East London.
- Sports facilities at the Atherton Centre, which is just a few minutes walk away and the University and Sports Science has excellent links with the Olympic Development in Stratford, and is expected to benefit from this legacy after 2012 Olympics.
- New massive shopping centre, the vast retail and leisure development named Stratford City is due to open in 2011.
- Central London only 20 minutes away by underground, and extensive transport links with all parts of London.
- The Channel Link rail station is due to open in 2011, providing a rapid link with continental Europe.

Outcomes

Programme aims and learning outcomes

What is this programme designed to achieve?

This programme is designed to give you the opportunity to:

- Demonstrate an in-depth knowledge of specialised areas of Physiology and have an appreciation of the current range of theoretical and research understanding in those areas.
- Conceptualise practice issues from alternative theoretical perspectives and synthesise, develop and communicate creative solutions.
- Create, design and explore a research question in a specialised area and evaluate this research with appropriate justification.
- Reflect critically on their own and others' learning and practice.
- Disseminate to peers in a critical format, underlying evidence in specific areas of practice.
- Demonstrate the skills relevant to independent, life-long learning.
- Have a systematic awareness of knowledge and a critical awareness of current problems and new insights, much of which are at, or informed by, the forefront of Physiology.
- Be able to advance their knowledge and understanding and to develop new skills to a high level.
- Have a comprehensive understanding of the latest research techniques used in Physiology.
- Proficiently use a range of IT software including MS Office and Prism programmes.
- Communicate effectively with a wide range of audiences using a variety of methods including written, poster, oral and web-based presentations.
- Select and use appropriate methods of data analysis.
- Design and develop a high quality dissertation and present it in a suitable form.

- Provide evidence of ability to set realistic aims in research work and manage time and resources effectively.
- Take into account previous work done and build upon it.
- Prepare an effective application for a specific job.

What will you learn?

Knowledge

- A sound foundation and knowledge of both the practical and theoretical aspects of Physiology.
- Detailed knowledge of Medical aspects of Physiology.
- A huge range of techniques to investigate the human body.
- The principles of statistical assessment of clinical and research data.

Thinking skills

- The ability to use integrated approaches to analyse and interpret complex and contradictory scientific information autonomously and to accurately assess and criticise your own and others' work.
- An awareness and understanding of the ethical constraints associated with the subject area and the ability to relate these to your own experience.
- The ability to contribute to the development of the subject through applied study or research.
- The ability to solve problems in science.

Subject-Based Practical skills

- The ability to select and apply a range of practical skills relevant to Physiology.
- A higher level of competence in laboratory skills.
- An ability to isolate, assess and resolve problems independently and to react effectively to unusual and unexpected situations.
- An improved ability to engage in professional and academic communication with others in your specialist field.
- The ability to select and utilise appropriate computer software, and to understand its limitations in presenting scientific data.

Skills for life and work (general skills)

- Increased ability to take responsibility for your own learning and the ability to work with and motivate others.
- Ability to reflect critically on your own and others' performance resulting in the improvement of subsequent actions.
- Increased confidence in your own abilities.
- Improved skills in written and verbal communication of complex information.

Structure

The programme structure

Introduction

All programmes are credit-rated to help you to understand the amount and level of study that is needed.

One credit is equal to 10 hours of directed study time (this includes everything you do e.g. lecture, seminar and private study).

Credits are assigned to one of 5 levels:

- 0 - equivalent in standard to GCE 'A' level and is intended to prepare students for year one of an undergraduate degree programme
- 1 - equivalent in standard to the first year of a full-time undergraduate degree programme
- 2 - equivalent in standard to the second year of a full-time undergraduate degree programme
- 3 - equivalent in standard to the third year of a full-time undergraduate degree programme
- M - equivalent in standard to a Masters degree

Credit rating

The overall credit-rating of this programme is 180 for Masters (MSc), 120 for a Postgraduate Diploma (PGDip) and 60 for a postgraduate certificate (PGCert).

Typical duration

The typical duration of this programme is one year full-time or two years part-time. It is possible to move from full-time to part-time study and vice-versa to accommodate any external factors such as financial constraints or domestic commitments. Many of our students make use of this flexibility and this may impact on the overall duration of their study period.

How the teaching year is divided

The teaching year is divided into two semesters of roughly equal length. A typical student registered in a full-time attendance mode will study two 30 credit modules per semester and a typical student registered in a part-time attendance mode will study one or two modules per semester. Teaching and assessment of taught modules is completed within each semester. The research project is completed in the summer period, between June and September. For part-time students, attendance is required on one full-day per week, for full-time students attendance is normally three days but this may be increased during the research project.

What you will study when

The order in which modules are taken will vary for different groups of students. This is possible because the modules are all free standing, except that the research skills module should be taken before the start of the project.

Part-time MSc students study Research skills for Pharmacology and Physiology in semester A and Clinical Instrumentation and Diagnostic Physiology in semester B of the first year.

These are followed by Advanced cellular Pharmacology & Physiology in semester A of year 2 and Health and Disease of Physiological Systems in semester B. The project would be taken in the summer period.

Full time students complete the whole programme in a single calendar year. Students starting the programme in Semester A will take Advanced Cellular Pharmacology & Physiology and Research skills for Pharmacology and Physiology in semester A followed by Health and Disease of Physiological Systems and Clinical Instrumentation and Diagnostic Physiology in semester B. The project would be taken in the summer period.

Level	UEL Module Code	Module Title	Credit	Status
M	BS7018	Advanced Cellular Pharmacology and Physiology	30	Core
M	BS7019	Research Skills for Pharmacology and Physiology	30	Core
M	BS7025	Health & Disease of Physiological Systems	30	Core
M	BS7026	Clinical Instrumentation and Diagnostic Physiology	30	Core
M	BS7003	Research Project	60	Core

Requirements for gaining an award

- In order to gain a Masters degree you will need to obtain all 180 credits. These credits will include a 60 credit level M core module of advanced independent research. Intermediate awards will be made if a student fails to obtain sufficient credit for the Masters degree.
- In order to gain a Postgraduate Diploma you will need to obtain a minimum of 120 credits at level M which would normally comprise of the modules delivered in year 1 of the full-time programme.
- In order to gain a Postgraduate Certificate you will need to obtain a minimum of 60 credits at level M.
- At each award level, students who have obtained a weighted average score of above 70% will be considered for the award with distinction. Such an award shall be made at the discretion of the assessment board.
- To pass a module, students must normally obtain at least 50% of the available marks, providing they have obtained a minimum of 40% of the available marks in all components of the assessment (examination and/or coursework, as appropriate).

Masters Award Classification

Where a student is eligible for an Masters award then the award classification is determined by calculating the arithmetic mean of all marks and applying the mark obtained as a percentage, with all decimals points rounded up to the nearest whole number, to the following classification

70% - 100% Distinction
60% - 69% Merit
50% - 59% Pass
0% - 49% Not Passed

Assessment

Teaching, learning and assessment

Teaching and learning

Knowledge is developed through

- Lectures
- Seminars and workshops
- Student centred learning – directed reading, assignment preparation.

Thinking skills are developed through

- Tutorials
- Seminars and workshops
- Report writing and assignments
- Project work

Practical skills are developed through

- Laboratory practical sessions
- Individual research project
- Data analysis exercises
- Use of IT and library based resources
- Student presentations

Skills for life and work (general skills) are developed through

- Student centred learning
- Seminar and workshop discussions
- Oral and written presentations
- Computer assignments
- Managing time
- Team work

Assessment

Knowledge and Thinking Skills are assessed by

- Evidence of reading and comprehension of the topics covered in the module being assessed. This will be particularly apparent in essay work and examinations.
- Ability to describe, explain and discuss various aspects of the programme material in the context of class tutorials, group work, presentations and other pieces of assessed coursework for the module.
- The ability to take information presented in any module out of its original context and to utilise this information in the construction of arguments, comparisons, hypotheses etc as required to address the specific assessments in each module.
- Critical review of practical exercises.

- Data Interpretation exercises.
- The ability to use subject knowledge in setting a piece of practical research work in its scientific context and to present the results obtained in a logical and coherent manner.

Practical skills are assessed by

- The ability to carry out laboratory practical work effectively, within the timeframe allocated.
- The ability to interpret and report on work carried out in the laboratory as evidenced by laboratory notebook entries, practical reports and project dissertation.
- The ability to complete assignments using appropriate resources such as IT and library facilities.
- Evidence of logical planning and management of time in the preparation of materials for assessment.

Skills for life and work (general skills) are assessed by

- The ability to work to strict deadlines
- The ability to select and utilise appropriate problem solving skills
- Demonstration of effective oral and written communication skills
- Evidence of interpersonal skills such as teamwork and /or team leadership
- Evidence of general numeracy skills

Quality

How we assure the quality of this programme

Before this programme started

Before this programme started we checked that:

- there would be enough qualified staff to teach the programme
- adequate resources would be in place
- the overall aims and objectives were appropriate
- the content of the programme met national benchmark requirements
- the programme met any professional/statutory body requirements
- the proposal met other internal quality criteria covering a range of issues such as admissions policy, teaching, learning and assessment strategy, and student support mechanisms

This is done through a process of programme approval which involves convening a panel of academic experts including some subject specialists from other institutions.

How we monitor the quality of this programme

The quality of this programme is monitored each year through evaluating:

- external examiner reports (considering quality and standards)
- statistical information (considering issues such as the pass rate)

- student feedback

Drawing on this and other information, programme teams undertake the annual Review and Enhancement Process which is co-ordinated at School level and includes student participation. The process is monitored by the Quality and Standards Committee.

Once every six years an in-depth review of the whole field is undertaken by a panel that includes at least two external subject specialists. The panel considers documents, looks at student work, speaks to current and former students and speaks to staff before drawing its conclusions. The result is a report highlighting good practice and identifying areas where action is needed.

The role of the programme committee

This programme has a programme committee comprising all relevant teaching staff, student representatives and others who make a contribution towards the effective operation of the programme (e.g. library/technician staff). The committee has responsibilities for the quality of the programme. It provides input into the operation of the Review and Enhancement Process and proposes changes to improve quality. The programme committee plays a critical role in the quality assurance procedures.

The role of external examiners

The standard of this programme is monitored by at least one external examiner. External examiners have two primary responsibilities:

- To ensure the standard of the programme;
- To ensure that justice is done to individual students.

External examiners fulfil these responsibilities in a variety of ways including:

- Approving exam papers/assignments;
- Attending assessment boards;
- Reviewing samples of student work and moderating marks;
- Ensuring that regulations are followed;
- Providing feedback through an annual report that enables us to make improvements for the future.

Listening to the views of students

The following methods for gaining student feedback are used on this programme:

- Module evaluation questionnaires
- Student representation on the programme committee (meeting 2 times a year)
- Informal discussions with tutors

Students are notified of the subsequent action taken through:

- Circulating the minutes of the programme committee meetings to all members
- Providing details on the programme noticeboard

- Oral feedback to students

Listening to the views of others

The following methods are used for gaining the views of other interested parties:

- Feedback from previous students
- Discussions with employers

Further Information

Alternative locations for studying this programme

Location	Which elements?	Taught by UEL staff	Taught by local staff	Method of Delivery
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

Where you can find further information

Further information about this programme is available from:

- The UEL web site
- The programme handbook
- Module study guides
- UEL Manual of Regulations and Policies
- UEL Quality Manual
- Regulations for the Academic Framework
- School web pages