

Medical Physiology

This version of the programme is no longer recruiting. Please refer to the updated programme specification for the programme of the same name.

Final award	BSc (Hons)
Intermediate awards available	Cert HE, Dip HE, BSc
UCAS code	B121
Details of professional body accreditation	N/A
Relevant QAA Benchmark statements	Biosciences
Date specification last up-dated	September 2012

Profile

The summary - UCAS programme profile

BANNER BOX:

This Medical Physiology programme provides an excellent opportunity to study the complex anatomy and detailed function of the human body in health and disease. Anatomy and Physiology are two of the core subjects of Medicine. Special importance is given to learning practical anatomy and relating this to physiological function. Applied Physiology is emphasized throughout the programme by the teaching of techniques and instrumentation used to investigate and assess health and disease e.g. ECG, fitness tests, chest X-rays. All students will learn life support and obtain a first aid certificate. The programme is ideal for a research career in the biological/medical fields or for studying higher degrees (MSc, PhD). The programme should be extremely attractive to those intending to pursue a career in Medicine, Physiotherapy, Dentistry and other professions allied to Medicine in the NHS or using their skills in teaching, the Pharmaceutical and other industries.

ENTRY REQUIREMENTS

The minimum requirement is 240 points at A2 level from Physics, Biology or Chemistry. Applicants can obtain this by a combination of either 2 A levels or 3 for both single and combined honours programmes. We would expect the majority to have studied Biology at A2. We also accept the equivalent Baccalaureate or Irish Highers. Other qualifications include Access to Science, Advanced GNVQ in Science at merit grade, and BTEC National Diploma in Science with a minimum of 6 modules at merit grade or higher. All students should also have a minimum of grade C at GCSE, or equivalent, in English language, mathematics and double science (or chemistry and biology if taken separately). Applicants with overseas or alternative qualifications are considered on an individual basis. Overseas students need to show some evidence of both written and spoken English (e.g. TOEFL at 550 or an IELTS score of 6.0). For mature students (aged 21 or over), credit may be given for relevant work experience and recognition of particular skills and/or knowledge through accreditation of prior learning (AEL), according to established University procedures.

Direct entry to the second year of the programme is available for students with Higher

National Certificate or Diploma in an appropriate area, or for those who have successfully completed study equivalent to level one in a similar programme at another University. Direct entry to level three is only available to students who have successfully completed levels one and two of a programme with very similar content at another University.

Applicants lacking the required entry qualifications may apply for the extended degree programme which is an appropriate basis for starting the degree.

ABOUT THE PROGRAMME

What is Medical Physiology?

Medical Physiology is a study of the normal and abnormal function of the human body with particular emphasis on applied aspects, such as practical anatomy, exercise physiology, fitness testing, instrumentation and measurement of body systems and first aid techniques.

The programme covers a wide range of biomedical areas including anatomy, human physiology, nutrition, pharmacology, biochemistry and microbiology.

Medical physiologists work in a variety of fields, as health care scientists in the NHS interpreting collected data which can then be used to inform diagnosis and therapy.

Alternatively, the degree would suit jobs in teaching, the pharmaceutical industry, management and IT. There is the possibility that, with further study, they could become Doctors or Dentists or other positions allied to medicine. Many science graduates also study for higher qualifications such as MSc or PhD enabling them to undertake careers in research.

Medical Physiology at UEL

- The programme at UEL aims to provide students with a strong scientific background for studying both the normal structure and function of the human body and the pathophysiology (covering causes, symptoms and diagnosis of disease).
- Strong emphasis on practical anatomy (location, structure, function) of the body
- Practical skills in cardiopulmonary resuscitation and first aid certificate
- Applied physiology such as exercise and fitness assessments, nutrition and health, drugs and disease, instrumentation and measurement of body systems.
- An emphasis on specialist techniques (including biochemical, physiological, pharmacological, molecular and tissue) to investigate and interpret body systems.
- Extensive laboratory training through all years of the programme.
- Work experience by taking an optional sandwich year

Programme structure

- Full-time students can complete the programme in 3 years, or 4-years if undertaking the sandwich degree . The programme can also be followed part-time.
- At Level 1, basic scientific concepts, on structure and function of the body, are introduced in modules on Human Physiology, Anatomy of Movement, Cellular Biology and Cellular Processes. Skills for Biosciences provides the necessary learning and basic practical skills for further study at level 2.
- At Level 2, students build on the modules at level one with further study of anatomy, physiology and biochemistry with modules in Metabolism, Physiological Function and Dysfunction (including introductory Histology), Physiological Regulation and Functional Anatomy. Students are also introduced to pharmacology and nutrition by studying Introductory Pharmacology and Food and Nutrition.

- The third year of study can be spent away from the University in a work placement (Sandwich programme).
- Level 3 specialises in pathology, research skills and medical and applied physiology with modules in Applied Medical Physiology (respiratory disease, advanced nutrition), Exercise Physiology (with advanced fitness assessment), Clinical Physiology and Employability (medical instrumentation and first aid) and Systems Pharmacology (pharmacology of major diseases). All single and major combined honours students have to do an individual research project involving original work. This may be laboratory or library based.

Learning environment

Learning is encouraged through participation in a wide variety of activities including lectures, seminars, workshops, laboratory practicals (both individual and group work), external visits, distance learning, web-based learning etc. Each module has 5 to 6h of classes per week, and you may need up to 10 h further independent study per week on each module.

Success at university depends on developing your ability to study independently using library resources, handouts and web-based study activities.

The level 1 Skills module helps to make the transition to independent learning needed at university, compared to schools and FE colleges, and also helps to develop transferable skills (e.g., reflective practice) important in working life.

Assessment

Students are assessed in practical work and theory. In most modules 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 50% from unseen written theory examination at the end of the semester.

- Level 1 (Year 1) modules introduce you to the standards and types of assessment used at university. Some have theory exams staged at intervals through the semester. Although they do not contribute to your final Honours grade, you need to achieve at least 40% to pass a Level 1 module. Your final Honours grade uses marks from Level 2 and Level 3 modules only. Your Level 1 modules prepare you to do your best in these later years.
- If a module is not passed at the first opportunity, marks from later opportunities are capped.

Work experience/placement opportunities

The 4-year Sandwich programme offers a year working in an appropriate laboratory

Project work

- For single honours students one third of your final year is spent on an individual research project and this contributes over 20% to your final Honours mark.
- Combined honours students majoring in medical physiology may elect to undertake either a single (20 credit) or double (40 credit) project module at level 3.
- Project work is an essential component of an Honours degree programme and one that most students enjoy.

- Project work encourages students to show initiative in their individual work under supervision, to generate and interpret new data and to keep a record of their work.
- Most projects continue investigating areas of medical interest such as causes and diagnosis of disease and also understanding mechanisms of normal function.
- Students are required to communicate their findings both as a poster and a project report.
- Projects may be library or laboratory based.

Added value

- Extensive personal support throughout the course.
- Excellent training in practical and research skills.
- First aid certificate
- The sandwich year can improve your job prospects.

IS THIS THE PROGRAMME FOR ME?

If you are interested in...

- Functions of the human body
- Medical applications of physiology
- Practical and surface anatomy (using skeletons, anatomical models and humans)
- Physiology of exercise, stress, nutrition and measurement of fitness
- First aid and cardiopulmonary resuscitation
- Understanding how body systems malfunction and can lead to disease
- Learning how to use modern practical techniques to investigate the body and interpret data to be used for diagnosis and treatment
- Learning the principles behind medical instrumentation and their usage
- Improving your scientific skills of logical argument and analysis.
- Having a career in research and development, scientific management, science journalism or teaching in a biological sciences area.

If you enjoy...

- Watching TV programmes (like Horizon, 999, Holby City or ER) or reading New Scientist and Scientific American articles on medicine).
- Biology, particularly the structure and function of the human body.
- Finding out how scientific discoveries contribute to solving problems in medicine.
- Doing scientific procedures and experiments in laboratories and IT labs.
- Working in groups in laboratories using standard and new techniques to solve problems.

If you want...

- To study how the body 'works' in health and disease.
- Learn how medical techniques are used to assess the human body in health and disease (e.g. ECG).
- To have a recognised first aid certificate.
- To do 'hands on' anatomy.

- The chance of combining your degree programmes with other programmes involving Sport, Health, Pharmacology and Clinical Science.
- The option of a year's work experience in a laboratory away from the University.
- To be able to spend part of your final year on your own individual research project at the university.

Your future career

- Applying for Medicine, Physiotherapy and Dentistry
- Work in the NHS as healthcare scientists (e.g. enter as Trainee Clinical Physiologists)
- Laboratory based work in research institutes and universities, industrial and pharmaceutical laboratories.
- Higher degrees (MSc and PhD) in related subjects.
- Training as a teacher (e.g. enrol on PGCE courses at UEL)

How we support you

The [School of Health and Biosciences](#) provides immediate contact with University support systems.

- In your first year, you are 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.
- Module leaders and programme leaders also give support on academic matters, and advice about other specialist help available through the University.
- The School of Health and Biosciences office has a Help Desk to 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](#) links.

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
- Childcare for students with children aged 2 1/2 years to 5 years.
- 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 School of Health and Biosciences with staff and facilities to match the wide interests and backgrounds of students.

- Excellent new laboratory facilities and equipment (e.g New Physiology laboratory with state of the art research and exercise equipment)
- Sports facilities at the Atherton Centre, which is just a few minutes walk away.
- 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, including the development of the 2012 Olympic facilities
- Central London only 20 minutes away by underground, and extensive transport links with all parts of London and Europe by the Channel Tunnel rail link.

Outcomes

Programme aims and learning outcomes

What is this programme designed to achieve?

This programme is designed to give you the opportunity to:

This programme is designed to give you the opportunity to:

- Acquire a sound understanding of the theory and practice of Medical Physiology.
- Critically evaluate the concepts, techniques and applications of Medical Physiology
- Develop the practical and transferable skills necessary for a career in Physiology and related areas.
- Develop responsibility for independent learning.

What will you learn?

Knowledge and understanding

- An understanding of the detailed structure and function of the human body, with a knowledge of health, disease, disorder and dysfunction, and pathology.
- An understanding of the investigative techniques used in physiology to interpret and diagnose normal and abnormal function of body systems
- The principles and applications of scientific enquiry, including the research process*
- Applications of exercise physiology including fitness assessments**
- Theory and practical skills of first aid including the first aid certificate***
- An awareness of applicable health and safety legislations and the practice of health and safety policies and procedures

*Applies to single and combined honours students undertaking a physiology research project at level 3

** Applies to single and combined honours students who complete the Exercise Physiology module at level 3

*** Applies to single and combined honours students who complete the Clinical Physiology and Employability module at level 3.

'Thinking' skills

- The ability to comprehend, analyse and criticise published information.

- The ability to formulate hypotheses and make reasoned conclusions
- The ability to use integrated approaches to problem solving.

Subject-Based Practical skills

- The ability to analyse data from your own and other people's experiments and to interpret them in the light of published work.
- The ability to select and apply a range of practical skills to solve problems.
- The ability to design and carry out experimental work.
- The ability to effectively communicate your work to others by a variety of means.
- The ability to select and utilise appropriate computer software.

Skills for life and work

- The development of your own style of independent learning.
- The ability to communicate ideas and experiments to others and to debate relevant scientific and /or ethical issues.
- IT skills.
- Numeracy skills
- Work safely in accordance with health and safety regulations
- Communication of information, instructions, advice and opinion to a variety of people.
- Team work.
- Time management.

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 360 credits.

Typical duration

The duration of this programme is three years full-time (four years sandwich) or five 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 begins in September (or February) and ends in June (or January). A student, normally registering for 6 modules (120 credits) in one year (3 modules in each Semester) would do so in a full-time attendance mode of study and a student registering for up to 4 modules (80 credits) in one year (2 modules in each Semester) would do so in part-time attendance mode of study.

What you will study when

This programme is part of a modular degree scheme. A typical full-time student will take six 20 credit modules per year. An honours degree student will complete six modules at level one, six at level 2 and six at level 3.

It is possible to bring together modules from one subject with modules from another to produce a combined programme. The University offers subjects in a variety of combinations:

Single 120 credits at levels one, two and three with minimum of 40 credits drawn from university wide option

Major 80 credits at levels one, two and three with a minimum of 20 credits drawn from university wide option

Joint 60 credits at levels one, two and three with a minimum of 20 credits drawn from university wide option

Minor 40 credits at levels one, two and three.

Modules are defined as:

Core Must be taken

Option Select from a range of identified modules within the field

University Wide Option Select from a wide range of university wide options

The following are the core and optional requirements for the single, major, joint and minor routes for this programme.

LEVEL	TITLE	CREDITS	STATUS SINGLE	STATUS MAJOR	STATUS JOINT	STATUS MINOR
1	Skills for Biosciences *	20	Core	Core	Option*	
1	Cellular Biology	20	Core	Core	Option	Option

1	Human Physiology	20	Core	Core	Core	Core
1	Anatomy of Movement	20	Core	Core	Core	Option
1	Cellular Processes	20	Core		Option	Option
1	Microbiology	20	Option		Option	Option
1	Human Health and Disease	20	Option			
2	Metabolism	20	Core	Option		
2	Introductory Pharmacology	20	Core	Option		
2	Functional Anatomy	20	Core	Core	Core	
2	Physiological Function and Dysfunction	20	Core	Core	Core	Core
2	Physiological Regulation	20	Core	Core	Core	Core
2	Food and Nutrition	20	Core	Option		
3	Systems Pharmacology	20	Core			
3	Exercise Physiology	20	Core	Option	Option	Core
3	Research project	20		Option**	Option	
3	Clinical Physiology and Employability *	20	Core	Core	Option*	
3	Research project *	40	Core	Option**	Option*	
3	Applied Medical Physiology	20	Core	Core	Core	Core

* Joint students must take the skills modules in one of their chosen areas only

** Major students must take one of the project modules

Requirements for gaining an award

In order to gain an honours degree you will need to obtain 360 credits including:

- A minimum of 120 credits at level one or higher
- A minimum of 120 credits at level two or higher
- A minimum of 120 credits at level three or higher

In order to gain an ordinary degree you will need to obtain a minimum of 300 credits including:

- A minimum of 120 credits at level one or higher
- A minimum of 120 credits at level two or higher
- A minimum of 60 credits at level three or higher
-

In order to gain a Diploma of Higher Education you will need to obtain at least 240 credits including a minimum of 120 credits at level one or higher and 120 credits at level two or higher

In order to gain a Certificate of Higher Education you will need to obtain 120 credits at level one or higher

In order to gain an Associate Certificate you will need to obtain a minimum of 20 credits at level one or higher

In order to gain a Foundation Degree you will need to obtain a minimum of 240 credits including:

A minimum of 120 credits at level one or higher

A minimum of 120 credits at level two or higher

(A Foundation degree is linked to a named Honours degree onto which a student may progress after successful completion of the Foundation degree)

Degree Classification

Where a student is eligible for an Honours degree, and has gained a minimum of 240 UEL credits at level 2 or level 3 on the programme, including a minimum of 120 UEL credits at level 3, the award classification is determined by calculating:

The arithmetic mean of the best 100 credits at level 3 $\times 2/3$ + The arithmetic mean of the next best 100 credits at levels 2 and/or 3 $\times 1/3$

and applying the mark obtained as a percentage, with all decimal points rounded up to the nearest whole number, to the following classification

70% - 100% First Class Honours

60% - 69% Second Class Honours, First Division

50% - 59% Second Class Honours, Second Division

40% - 49% Third Class Honours

0% - 39% Not passed

Assessment

Teaching, learning and assessment

Teaching and learning

Knowledge and understanding is developed through

- Lectures
- Tutorials
- Workshops
- Practicals
- Reading
- Internet, UEL-plus, CAL

'Thinking' skills are developed through

- Computer aided learning
- Presentations
- Preparing for tutorials and seminars/workshops
- Completing coursework assignments (including data analysis essays, presentations etc)
- Independent reading

Practical skills are developed through

- Laboratory Practicals
- Computer simulations and use of IT

General skills are developed through

- Managing time
- Presenting ideas and arguments in a structured manner - written and oral communication
- Problem solving
- Team work

Assessment

- Written examinations
- Practical reports
- Essays
- Data analysis
- Poster presentations
- Oral presentations
- Portfolios
- Final year research project and dissertation
- MCQ tests
- Database searches
- Library exercises

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 course material in the context of class tutorials, group work, presentations and other pieces of assessed coursework for the module.
- In the final year particularly, thinking skills will be assessed by 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

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.
- The ability to complete assignments using appropriate resources.
- 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 the University 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 University's Quality Standing 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 University's 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 evaluations
- Student representation on programme committees (meeting each semester)
- Personal tutor, module leader, pathway leader, field co-ordinator

Students are notified of the action taken through:

- Circulating the minutes of the programme committee and the annual review and enhancement process report
- Verbal feedback to specific groups
- Providing details on the appropriate noticeboard
- Electronic noticeboards

Listening to the views of others

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

- Feedback from former students
- Liaison with placement 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 <http://www.uel.ac.uk>
- The programme handbook
- Module study guides <http://www.uel.ac.uk/hab/>
- UEL Manual of General Regulations <http://www.uel.ac.uk/qa>
- UEL Quality Manual <http://www.uel.ac.uk/qa/>
- Regulations for the Academic Framework <http://www.uel.ac.uk/academicframework/>
- [School web pages](#)