

Biomedical Sciences

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	B940
Details of professional body accreditation	Accredited by the Institute of Biomedical Sciences (2007 - 2012 intakes)
Relevant QAA Benchmark statements	Biosciences/ Biomedical Sciences
Date specification last up-dated	September 2012

Profile

The summary - UCAS programme profile

BANNER BOX:

This programme provides the academic requirements for Health Professions Council Registration as a Biomedical Scientist. Students taking a sandwich placement can complete part of the practical requirement for Registration in the sandwich year. Employment prospects, both as a State Registered Biomedical Scientist, or elsewhere, are excellent.

ENTRY REQUIREMENTS

For students entering with AS/A2 qualifications, the minimum requirement is 240 points at A2 level with a preferred minimum of 100 A2 points in Biology and Chemistry. We also accept Access to Science, Advanced GNVQ in Science at merit grade, and BTEC National Diploma in Science with a minimum of 6 units 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.

Applicants with overseas or alternative qualifications are considered on an individual basis. For mature students, credit may be given for relevant work experience.

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 at another University.

If you want to study Biomedical Sciences but have not achieved the right entry qualifications, why not start with our extended degree programme.

Students may be admitted through Accreditation of Experiential Learning (AEL) or Accreditation of Certificated Learning (ACL) processes.

In the case of applicants whose first language is not English, then IELTS 6.0 (or equivalent) is required. International qualifications will be checked for appropriate matriculation to UK Higher Education undergraduate programmes.

ABOUT THE PROGRAMME

What is Biomedical Sciences?

Biomedical Scientists carry out the complex and diverse investigations required in modern hospital pathology laboratories. They provide the scientific information required for effective diagnosis and treatment. To do this they require an in depth knowledge of the causes of disease and the practical ways in which they can be investigated. This degree programme aims to provide this knowledge.

If you want to study Biomedical Sciences but have not yet got the right entry qualifications, why not start with our Extended Degree in Biomedical Science (feeds in at level 1)

Biomedical Sciences at UEL

- The programme at UEL is based around the study of the biology of disease.
- All specialist areas of Biomedical Sciences are included in the programme, which is therefore broadly based and relatively non specialist.
- Students can obtain paid clinical training in accredited hospital laboratories by taking an optional sandwich year.
- Offers extensive laboratory training through all years of the programme
- Shares a common first year with other Bioscience degrees at UEL, leaving you an option to transfer to similar degree programmes at the end of the first year.

Programme structure

- Students follow a 4-year sandwich degree programme or a 3-year full-time programme. The programme can also be followed part-time.
- At Level 1 biochemistry, cell biology, physiology and microbiology are introduced in modules on Cellular Biology, Cellular Processes, Human Physiology and Microbiology. Skills for Biosciences and Human Health and Disease modules provide general background skills, statistics, chemistry, IT and laboratory skills. These modules also include an introduction to the biology of disease processes.
- At Level 2, students continue the study of biochemistry with modules of Metabolism and Molecular Biology. Modern molecular biology methods and their medical applications are introduced in Molecular Genetics, and Practical and Employability investigates the major methods of laboratory investigation. The study of human physiology is continued in Physiological Function and Dysfunction, which also includes an introduction to the histology of normal and pathological tissues. The biology of disease-causing micro-organisms is studied in Medical Microbiology.
- The third year of study can be spent away from the University in an agreed work placement. (see below).
- The final year (Level 3) contains modules of Medical Biochemistry, looking at the biochemical causes of disease, including cancer and arterial disease, Infectious Disease Processes, which continues the study of medical microbiology and Immunology, which investigates the body's defence systems. In Cellular Pathology

and Haematology you will learn to identify normal and pathological tissue under the microscope and will study blood and the diseases of the blood. In the final taught module, Clinical Immunology and Transfusion Science, you will continue the study of the medically important aspects of immunology together with a study of blood storage and transfusion.

- In the final third year module you do an individual research project involving original self directed work. This may be laboratory based, or it may involve a library investigation, but in either case it will involve the generation and assessment of data.

Learning environment

Learning is encouraged through participation in a wide variety of activities including lectures, seminars, workshops, laboratory-based practicals, external visits, distance learning, web-based learning etc. You study 3 modules per semester. Each module has 5 to 6h contact per week, and may need up to 10h further individual study per week.

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

The first year has a Skills module each semester. These help you make the major shift to independent learning needed at university, compared to schools and FE colleges, and also help to develop those transferable skills so 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 are expected to achieve at least 40% in all Level 1 modules.
- 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 at 40%

Work experience/placement opportunities

- The third year of the programme can be spent in a Sandwich Placement. This is optional but it is strongly recommended for students on this programme, for whom it will provide significant advantages in obtaining HPC Registration.
- Placements are arranged in accredited hospital pathology laboratories and students can complete a proportion of the practical requirement for State Registration during their placement year. It is unlikely that all the State Registration requirements will be completed within the year, but students are encouraged to return to the placement laboratory at the end of their programme to complete the clinical requirements. In this way students can currently become HPC Registered very shortly after graduation. .

Arrangements for funding of placements vary, but most are paid at Trainee Biomedical Scientist level.

It should be noted that sandwich placement cannot be guaranteed. Placements are awarded by competitive interview, and the decision on who is placed is made by an interview panel from the hospitals accepting placement students, not the University. Placements can be in any of the specialist areas of Biomedical Sciences (Clinical Biochemistry, Medical Microbiology, Haematology, Cellular Pathology or Immunology). Visits to hospital laboratories will be arranged in the second year of the programme so that students are familiar with each of the specialist areas before applying for placement.

Project work

- Project work is an essential component of an Honours degree programme and one that most students enjoy. Small projects and group work exercises feature throughout the programme.
- Your final year includes an individual research project module in the final semester.
- Project work encourages students to show initiative in their individual work under supervision in a laboratory, using appropriate techniques to generate and interpret new data.
- Most projects continue investigating areas of clinical interest such as cancer therapy, vaccine development and the development of clinical tests.
- Projects may be library or laboratory based or may involve analysis of clinical data

Added value

- Extensive personal support throughout the course.
- Sound practical as well as academic training.
- Excellent job prospects for all students at the end of the course both in the NHS and elsewhere.
- Effective careers advice and support available.

IS THIS THE PROGRAMME FOR ME?

If you are interested in...

- Finding out more about how diseases develop and are treated.
- Developing your knowledge of medical sciences.
- Studying practical methods relevant to diagnosis and treatment of disease.
- Understanding how current knowledge about disease depends on study at many levels: molecules, cells, and whole organisms.
- Improving your scientific skills of logical argument and analysis.
- Having a professional career in the NHS or elsewhere at the end of your programme.
- Having the satisfaction of a career which contributes to the well being of society as a whole.

If you enjoy...

- Reading or hearing about research and/ or medicine (do you already enjoy TV documentaries like Horizon or Equinox, radio science programmes, New Scientist articles?).
- The challenge of increasing not just your knowledge of facts, but also your understanding of how science contributes to the search for new solutions to problems.
- Doing scientific procedures and experiments in laboratories and IT labs with precision.
- Working in laboratories using standard and novel techniques to solve problems.
- Being able to study quietly and individually away from formal staff-led sessions.

If you want...

- To focus eventually on one specific area of biomedical science, but still keep your career options open.
- The chance of reviewing your degree programme at the end of the first year and possibly changing to Biochemistry, Pharmacology, Toxicology, or a more general Biosciences degree.
- The option of a year's work experience in a laboratory away from the University.

Your future career

While we would expect that most graduates would want to become HPC Registered, the degree programme is well regarded by potential employers and graduates are sought after. Many students go on to research degrees and to jobs in research institutes, industrial and pharmaceutical laboratories and in sales. Because the degree is broadly based it is also an excellent qualification for a teaching career.

Graduates who become HPC Registered may work in NHS Trust pathology laboratories, but might also work in the Public Health Laboratory Service, the National Blood Authority, the Health and Safety Executive or forensic laboratories. Most graduates progress quickly through the profession, completing a Specialist Portfolio within the first two years of professional work, and usually progress to an MSc programme. It is now possible to complete a Professional Doctorate by part time study at a number of UK universities including UEL whilst working as a Biomedical Scientist.

In addition to NHS jobs, recent graduates have progressed to:

- Higher degrees in Biomedical Science related areas (MSc, PhD).
- Research Institutes, industrial research laboratories, research in hospitals.
- Sales
- Further study in other disciplines, e.g. MSc (e.g. IT ; Business), MBA, Nursing, Physiotherapy, Dentistry, Medicine, Pharmacy.
- Training as a teacher. (e.g. enrol on PGCE programmes at UEL)

How we support you

The School of Health and Bioscience 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 Degree pathway 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 assistance.
- 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 [UEL Plus 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
- 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 Biosciences with staff and facilities to match the wide interests and backgrounds of students.
- 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.
- Central London only 20 minutes away by underground and [extensive transport links](#) with all parts of London.

Outcomes

Programme aims and learning outcomes

What is this programme designed to achieve?

This programme is designed to give you the opportunity to:

- acquire a sound understanding of the theory and practice of Biochemistry.
- critically evaluate the concepts, techniques and applications of Biochemistry
- develop the practical and transferable skills necessary for a career in Biochemistry and related areas.
- develop responsibility for independent learning.

What will you learn?

Knowledge

- The basis of an in-depth knowledge of the biology of disease at the molecular level.
- An awareness of current progress and research in medicine and areas pertaining to medicine.
- An awareness of the contribution made by Biomedical Scientists to the diagnosis and treatment of injury and disease.
- An understanding of the driving forces behind current research in the field.
- An awareness of the wider implications of scientific research on society as a whole.

Thinking skills

- The ability to comprehend, analyse and criticise published information.
- The ability to formulate hypotheses with the minimum of assistance.
- 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 relevant to biomedical science.
- 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 (general skills)

- 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.
- Communication skills.
- 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 expected duration of this programme is 3 years when attended in full-time mode or 4 years in part-time mode. It is possible to move from a full-time mode of study to a part-time mode of 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 and ends in June but some programmes also allow students to join at the start of Semester B, in February.

A typical student, in full-time attendance mode of study, will register for 120 credits in an academic year. A student in a part-time mode of study may register for up to 80 credits in any academic year.

What you will study when

This programme is part of a modular degree scheme. A student registered in a full-time attendance mode will take six 20 credit modules (or fewer, if any are 40 credit modules) per year. An honours degree student will complete modules totalling 120 credits at level one, modules totalling 120 credits at level 2 and modules totalling 120 credits at level 3.

It is possible to bring together modules from one subject with modules from another to produce a combined programme. Subjects are offered in a variety of combinations:

- Single - 120 credits at levels one, two and three
- Major - 80 credits at levels one, two and three
- Joint - 60 credits at levels one, two and three
- 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 modules across the University

The following are the core and optional requirements for the single and major pathways for this programme

The Skills Modules listed in the Joint Route are Core, unless the equivalent Skills Modules are taken in your other combined subject.

LEVEL	UEL Module Code	TITLE	SKILLS MODULES	CREDITS	STATUS SINGLE	STATUS MAJOR	STATUS JOINT	STATUS MINOR
			(Insert Y where appropriate)					
1	BS1000	Skills for Biosciences	Y	20	Core	-		
1	BS1001	Cellular Biology		20	Core	-		
1	BS1041	Human Physiology		20	Core	-		
1	BS1010	Human Health and Disease		20	Core	-		
1	BS1002	Cellular Processes		20	Option	-		
1	BS1022	Microbiology		20				
2	BS2001	Metabolism		20	Core	-		
2	BS2002	Molecular Biology		20	Core	-		
2	BS2012	Molecular Genetics		20	Core	-		
2	BS2011	Practical and Employability Skills	Y	20	Core	-		
2	BS2049	Physiological Function & Dysfunction		20	Core	-		
2	BS2024	Medical Microbiology & Immunology		20	Core	-		
3	BS3015	Medical Biochemistry		20	Core	-		
3	BS3045	Immunology		20	Core	-		

3	BS3023	Infectious Disease Processes		20	Core	-
3	BS3016	Cellular Pathology, Haematology and Transfusion Science		20	Core	-
3	BS3065	Independent Study and Research Project	Y	20	Core	-
3	BS3046	Clinical Immunology & Transfusion Science		20	Option	-

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 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:

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

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 is developed through

- Lectures
- Tutorials
- Workshops
- Practicals
- Reading
- Internet, UELPlus and 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

- Computer simulations and use of IT

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

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

Assessment

A wide variety of assessment methods are used including

- 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 programme material in the context of class tutorials, group work, presentations and other pieces of assessed coursework for the unit.
- 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 the programme started, the following was checked:

- 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 consulting 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.

In addition this course is accredited by the Institute of Biomedical Sciences. This means that the IBMS has appointed a panel of senior scientists and academics to visit the university in order to review the programme content and the way it is delivered. This approval has to be renewed every five years and was last renewed in 2007.

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 field committee and the annual quality improvement report
- Verbal feedback to specific groups
- Providing details on the appropriate noticeboard

Listening to the views of others

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

- Feedback from former students
- Industrial liaison committee
- Liaison with sandwich 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](#)
- The student handbook
- Module study guides
- [UEL Manual of Regulations and Policies](#)
- [UEL Quality Manual](#)
- [Regulations for the Academic Framework](#)
- [School web pages](#)