

## Programme Specification: Undergraduate

### For students starting in Academic Year 2024/25

#### 1. Course Summary

<b>Names of programme and award title(s)</b>	BSc (Hons) Pharmaceutical Science
<b>Award type</b>	Single Honours
<b>Mode of study</b>	Full-time
<b>Framework of Higher Education Qualification (FHEQ) level of final award</b>	Level 6
<b>Normal length of the programme</b>	3 years
<b>Maximum period of registration</b>	The normal length as specified above plus 3 years
<b>Location of study</b>	Keele Campus
<b>Accreditation (if applicable)</b>	Accreditation is currently being sought from appropriate professional bodies; this process is on-going.
<b>Regulator</b>	Office for Students (OfS)
<b>Tuition Fees</b>	<p><b>UK students:</b> Fee for 2024/25 is £9,250*</p> <p><b>International students:</b> Fee for 2024/25 is £28,000**</p>

**Please note that this document applies to Level 4 (Year 1) and Level 5 (Year 2) students only in 2024/25**

**How this information might change:** Please read the important information at <http://www.keele.ac.uk/student-agreement/>. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.

\* These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

\*\* We reserve the right to increase fees in subsequent years of study by an inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

#### 2. What is a Single Honours programme?

The Single Honours programme described in this document allows you to focus more or less exclusively on this subject. In keeping with Keele's commitment to breadth in the curriculum, the programme also gives you the opportunity to take some modules in other disciplines and in modern foreign languages as part of a 360-credit Honours degree. Thus it enables you to gain, and be able to demonstrate, a distinctive range of graduate

attributes.

The BSc in Pharmaceutical Science currently has one optional module: at Year 1 of study (FHEQ Level 4) students can take a 15-credit language module offered by the Keele Language Centre. This emphasises the international nature of the programme and also offers the opportunity for support, as appropriate, in English language.

### **3. Overview of the Programme**

The global pharmaceutical industry has experienced substantial change in recent years. Industry leaders must now understand how discoveries in science and technology translate to business opportunities within the pharmaceutical industry, whether in discovery, manufacturing, marketing and medicines supply and control. The employment market is becoming more challenging and this programme meets the need of the industry by producing graduates who are well-qualified in all aspects of the relevant applied sciences, who have well-developed key employability skills, and who also have significant knowledge and understanding of and insight into business and management - so you get more than just training in the core pharmaceutical sciences.

This course covers the main aspects of pharmaceutical discovery and development, product formulation, manufacture and quality assurance assessment, and explains how such pure and applied sciences fit into global business, legal and regulatory frameworks. This includes elements of clinical development and the role of the pharmaceutical scientist within the industry team that take a drug from research to the clinic.

As part of the preparation to enter the global pharmaceutical industry, there will be an opportunity to pursue a language pathway throughout the programme. In the first year you will take a language module in English (depending on fluency levels) or a modern foreign language for those fluent in English. This will ensure you have both a language and cultural understanding of nations outside your home country. For modern languages (not English language modules) you may wish to pursue a pathway through the programme that will provide you with recognition of this on your degree certificate. There will be opportunities at years two and three of the programme, depending on entry level to your chosen language and availability, to take up to 60 credits of language learning on this programme. If you achieve 60 credits of language learning as part of your programme you will have added to your degree certificate the additional recognition of having achieved "with competency in [Chosen Language]" or "with advanced competency in [Chosen Language]", depending on the level which you achieve. You can also take language modules as non-credit extracurricular study throughout your programme - further details can be obtained from the Language Centre.

The principal aim of the programme is to develop knowledge and skills in a wide variety of disciplines by demonstrating the linkages between seemingly disparate topics in science and technology that underpin all subsequent learning, and which are central to the successful delivery of new medicines to global markets.

### **4. Aims of the programme**

The broad aims of the programme are to enable you to:

- Develop the key scientific skill that, in an integrated context, underpin the clinically relevant development of pharmaceutical products
- Understand the structures and frameworks in which the pharmaceutical industry operates, both nationally and globally

### **5. What you will learn**

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Key or transferable skills (including employability skills)

#### **Subject knowledge and understanding**

Successful students will be able to:

- Understand the core principles of the pharmaceutical sciences as they are applied to the development, licencing and marketing of pharmaceutical products

#### **Subject specific skills**

Successful students will be able to:

- Understand the nature of pharmaceutical development, both in the laboratory and in the business environments, and to use this knowledge in the development of new strategies to develop clinically relevant approaches to disease management and treatment

## Key or transferable skills (including employability skills)

Successful students will be able to:

- Appreciate and understand how the core chemical and biological sciences integrate to underpin the successful development of pharmaceutical products, a core skills base which is directly applicable to a number of other industries (e.g. cosmetics, foods)

## The Keele Graduate Attributes

The Keele Graduate Attributes are the qualities (skills, values and mindsets) which you will have the opportunity to develop during your time at Keele through both the formal curriculum and also through co- and extra-curricular activities (e.g., work experience, and engagement with the wider University community such as acting as ambassadors, volunteering, peer mentoring, student representation, membership and leadership of clubs and societies). Our Graduate Attributes consist of four themes: **academic expertise, professional skills, personal effectiveness, and social and ethical awareness**. You will have opportunities to engage actively with the range of attributes throughout your time at Keele: through your academic studies, through self-assessing your own strengths, weaknesses, and development needs, and by setting personal development goals. You will have opportunities to discuss your progress in developing graduate attributes with, for example, Academic Mentors, to prepare for your future career and lives beyond Keele.

## 6. How is the programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- Lectures, tutorials, workshops, problem-solving sessions, interactive and immersive 3D teaching in the Health Cinema, laboratory work (individual and group exercises) and integrated 'synoptic' assessments which integrate the differing science subjects with the business aspects of the programme to develop clinically relevant products for patients.

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Academic Mentors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways. For example:

- The use of a wide range of assessment skills allow us to focus on different aspects of the challenges faced in pharmaceutical development; for example, this might include the use of individual or group-based activities, oral presentation sessions or student-led workshops where decision making is both collective and led by students; research projects may also give students the ability to work on a major piece of novel research not only by themselves but in collaboration with students taking similar projects and within the setting of research groups with the School of Pharmacy and Bioengineering.

## 7. Teaching Staff

The staff who deliver this course are based predominately within the School of Pharmacy and Bioengineering and have expertise in the core aspects of the pharmaceutical sciences: pharmacology, physiology, medicinal and organic chemistry and formulation and drug delivery. In addition, several members of the School's academic staff have previously worked in the pharmaceutical (and related) industry and who can frame their academic work within the context of their previous roles.

The BSc programme also makes significant use of expert external speakers who are, or have worked, in the pharmaceutical industry or related industries. This includes a range of business-focused roles and addresses with real world examples subjects as diverse as clinical development, marketing and branding of pharmaceutical products, the role of healthcare systems in the context of pharmaceutical sales and regulatory affairs.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

## 8. What is the structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from programme to programme, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April. Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are two types of module delivered as part of your programme. They are:

- Compulsory modules - a module that you are required to study on this course;
- Optional modules - these allow you some limited choice of what to study from a list of modules.

Optional modules include Global Challenge Pathways - a choice of modules from different subject areas that count towards the overall credit requirement but not the number of subject-related credits.

Global Challenge Pathways can either be taken as one 15-credit module at Levels 4, 5 and 6, or one 15-credit module at Levels 5 and 6 (except for the TESOL pathway). **Information about Global Challenge Pathways can be found after the module lists for Level 6.**

### Language modules

Students on this programme will also be able to study language modules offered by the Language Centre, as part of a Global Challenge Pathway. You can enrol on either a Modern Language module [more information available at this [link](#)] (Semester 1 only) Teaching English to Speakers of Other Languages (TESOL) (Semesters 1 and 2) module (ENL-10053), or the Intercultural Explorer pathway (ENL-10057). See the Global Challenges Pathway information under the module lists for more details.

If you choose the Language Specialist pathway, you will automatically be enrolled on a Semester 2 Modern Language module as a continuation of your language of choice (NB: in year 1, this is a faculty funded 'additional' module). Undertaking a Modern Languages module in Semester 2 is compulsory if you wish to continue to the Language Specialist Global Challenge Pathway the following academic year.

For further information on the content of modules currently offered, please visit:

<https://www.keele.ac.uk/recordsandexams/modulecatalogue/>

A summary of the credit requirements per year is as follows.

Year	Compulsory	Optional	
		Min	Max
Level 4	105	15	15
Level 5	90	30	30
Level 6	90	30	30

## Module Lists

### Level 4

Students will take 105 credits of compulsory modules, PHA-10028, PHA-10030, PHA-10032 and PHA-10036.

PHA-10028 and PHA-10030 are shared with the BSc in Bioengineering (Regenerative Medicine), formerly the BSc in Cell and Tissue Engineering; PHA-10032 is a bespoke module which focuses on introducing the core pharmaceutical sciences to students.

Students will therefore take 15 credits of optional modules. Students will have two pathways to select from:

1. Global Challenge Pathway
2. A module from those available from the Business School

All optional module selections are subject to availability and compatibility with the School of Pharmacy & Bioengineering timetable for compulsory modules.

<b>Compulsory modules</b>	<b>Module Code</b>	<b>Credits</b>	<b>Period</b>
Human Anatomy and Physiology	PHA-10028	30	Semester 1-2
Biochemistry & Cell Biology	PHA-10030	30	Semester 1-2
Introduction to Pharmaceutical Science	PHA-10032	30	Semester 1-2
Introduction to Formulation Science	PHA-10036	15	Semester 2

<b>Optional modules</b>	<b>Module Code</b>	<b>Credits</b>	<b>Period</b>
Management in Context	MAN-10018	15	Semester 1
Marketing Principles	MAN-10019	15	Semester 1
Global Business Environment	MAN-10022	15	Semester 1
Introduction to Cosmetic Science	PHA-10038	15	Semester 1
Introduction to International Business	MAN-10023	15	Semester 2
Multinational Enterprise Business Perspectives	MAN-10026	15	Semester 2

*NB: Global Challenge Pathways (GCPs)* - students have the option of taking a Global Challenge Pathway, which can either be taken as one 15-credit module at Levels 4, 5 and 6, or one 15-credit module at Levels 5 and 6 (except for the TESOL pathway). Information on GCPs is shown under the Level 6 modules below.

## **Level 5**

Students will take 90 credits of compulsory modules, PHA-20016, PHA-20014 and PHA-20018.

Students will therefore take 30 credits of optional modules. Students will have two pathways to select from:

1. Available modules from the Global Challenge Pathway
2. A module from those available from the Business School (one, 15-credit module)

All optional module selections are subject to availability and compatibility with the School of Pharmacy & Bioengineering timetable for compulsory modules.

Students will be encouraged to take one optional module in each semester but it is appreciated that this might not always be possible. Where two or more optional modules are selected in the same academic year the availability of modules will depend on the exact choice made in order to avoid overlap.

<b>Compulsory modules</b>	<b>Module Code</b>	<b>Credits</b>	<b>Period</b>
Applied Pharmaceutical Science I	PHA-20016	30	Semester 1
Pharmaceutical Analysis And Quality Control	PHA-20014	30	Semester 1-2
Applied Pharmaceutical Science II	PHA-20018	30	Semester 2

<b>Optional modules</b>	<b>Module Code</b>	<b>Credits</b>	<b>Period</b>
Organisational Behaviour	MAN-20055	15	Semester 1
Operations and Quality Management	MAN-20053	15	Semester 2

## **Level 6**

Students will take 90 credits of compulsory modules and 30 credits of optional modules.

Students will have two pathways to select from:

1. Available modules from the Global Challenge Pathway
2. A module from those available from the **School of Pharmacy and Bioengineering**

Compulsory modules	Module Code	Credits	Period
The Pharmaceutical Industry at the Cutting Edge	PHA-30021	30	Semester 1-2
Pharmaceutical Science Research Project	PHA-30025	30	Semester 1-2
Advanced Topics in Pharmaceutical Science (Pharmacology)	PHA-30041	15	Semester 1-2
Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery)	PHA-30043	15	Semester 1-2

Optional modules	Module Code	Credits	Period
Current Developments in Pharmaceutical Science II	PHA-30017	15	Semester 1-2
Current Developments in Pharmaceutical Science	PHA-30019	30	Semester 1-2
Modern Biotherapeutics	PHA-30057	15	Semester 1-2

### Global Challenge Pathways (GCPs)

Students have the option of taking a Global Challenge Pathway, which includes one 15-credit module at Levels 4, 5 and 6, or one 15-credit module at Levels 5 and 6. Students who started a Global Challenge Pathway at Level 4 will continue with the same pathway at Level 5. Students joining Global Challenge Pathways at Level 5 can join any pathway (except TESOL). Students at Level 6 will continue with the same Global Challenge Pathway they studied at Levels 4 and/or Level 5.

Global Challenge Pathways offer students the chance to fulfil an exciting, engaging route of interdisciplinary study. Choosing a pathway, students will be presented with a global issue or 'challenge' which directly relates to societal issues, needs and debates. They will be invited to take part in academic and external facing projects which address these issues, within an interdisciplinary community of students and staff. Students completing a Global Challenge Pathway will receive recognition on their degree certificate.

<b>Digital Futures</b>	<p>The Digital Futures pathway offers you the opportunity to take an active role in current debates, cutting-edge research, and projects with external partners, addressing both the exciting potential and the challenges of disruptive digital transformation across all spheres of life.</p> <p>Part of a diverse and interdisciplinary pathway community, you will engage in exciting, impactful collaborative project work in innovative formats on areas that matter most to you. Engaged in real-world scenarios as digital citizens, you will expand, deepen, and mobilise knowledge and skills to drive inclusive, empowering, and sustainable change at local and global levels.</p> <p><b>Level 4 Module: A digital life: challenges and opportunities (GCP-10005)</b></p> <p><b>Level 5 Module: Digital World - People, Spaces, and Data (GCP-20005)</b></p> <p><b>Level 6 Module: Digital Citizenship and Sustainable Futures (GCP-30005)</b></p>
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<b>Climate Change &amp; Sustainability</b>	<p>Through the Climate Change &amp; Sustainability pathway you will develop the skills, understanding and drive to become agents of change to tackle climate change and wider sustainability challenges.</p> <p>You will hear from international partners to learn about climate change and sustainability in different international contexts; lead your own projects to drive real change in your communities; and be part of educating and supporting others to help achieve a more sustainable future.</p> <p><b>Level 4 Module: Climate Change and Sustainable Futures: Global Perspectives (GCP-10009)</b></p> <p><b>Level 5 Module: Climate Change and Sustainability: Action and Activism (GCP-20009)</b></p> <p><b>Level 6 Module: Skills for Sustainability (GCP-30009)</b></p>
<b>Social Justice</b>	<p>The Social Justice pathway is based upon a transformative methodology which centres the student's role as 'agents of change' to reflect upon decolonising and feminist, perspectives on social justice, to forge critical outputs to transform the Sustainable Development Goals.</p> <p>You will develop research and engagement skills with local, national, and international partners from Universities, NGOs, International Human Rights frameworks. You will engage with key societal challenges focused upon the Sustainable Development Goals, to develop an intersectional response from identity-based perspectives on race, gender, sexualities and disabilities. The pathway will allow you to monitor and critically evaluate policies and human rights treaties, and produce and disseminate digitally fluent, international and sustainable project findings.</p> <p><b>Level 4 Module: Reflections on Social Injustices, Past and Present (GCP-10003)</b></p> <p><b>Level 5 Module: Strategic Interventions for Social Justice (GCP-20003)</b></p> <p><b>Level 6 Module: Transforming Social Justice; Global Perspectives (GCP-30003)</b></p>
<b>Enterprise &amp; the Future of Work</b>	<p>In order to meet the challenges set out in the UN's Sustainable Development Goals we need to understand the power of enterprise and prepare for the future contexts of work, creativity and disruption. By providing you with the skills, knowledge and understanding of global challenges this pathway will prepare you to be part of future-facing solutions. This module will support you in developing creative, original thinking, allowing you to collaborate on projects that persuade and effect change, setting you up to thrive in future environments of work and innovation.</p> <p><b>Level 4 Module: Enterprise and the Future of Work (GCP-10007)</b></p> <p><b>Level 5 Module: Enterprise and the Future of Work: Collaborate to Innovate (GCP-20007)</b></p> <p><b>Level 6 Module: Enterprise and the Future of Work: Designing Change (GCP-30007)</b></p>

<p><b>Global Health Challenges</b></p>	<p>By taking the global health challenge pathway you will develop solutions to improve the health and quality of life for particular people and communities, engaging with these groups to co-design interventions.</p> <p>This pathway will provide you with skills that go beyond a focus on health and will allow you to develop your ability to work in a team and lead change in society. The knowledge, skills and work experience will complement your core degree and enhance your career opportunities and graduate aspirations.</p> <p><b>Level 4 Module: Key concepts and challenges in global health (GCP-10001)</b></p> <p><b>Level 5 Module: Using Evidence to Improve Global Health (GCP-20001)</b></p> <p><b>Level 6 Module: Working to Improve Global Health (GCP-30001)</b></p>
<p><b>Languages &amp; Intercultural Awareness</b></p>	<p>Communication within and across cultures is inseparable from language, and development of intercultural awareness can enable you to actively contribute to the shaping of an international future. The Language and Intercultural Awareness pathway allows you to engage in genuine interdisciplinary and international exchange and to understand and explore the link between language, culture and communication. Each of the strands we offer provides you with skills and direct experience for active engagement in working to face global challenges.</p> <p><b>The Language Specialist:</b> Become a specialist in one of our languages and graduate with a degree title that includes '... with competency in (Language)' or '... with advanced competency in (Language)'.</p> <p><b>The Language Taster:</b> Explore a new language every year.</p> <p><b>The Certificate in TESOL</b> (Teaching English to Speakers of Other Languages): <b>(NB: only available if starting from Level 4)</b> Enhance your undergraduate degree by studying the Trinity College Certificate in Teaching English to Speakers of Other Languages (TESOL). As an internationally recognised qualification, you can teach around the world, enabling you to travel whilst helping people develop their English Language Skills. You will also develop many transferable skills which will enhance your future employability.</p> <p><b>The Intercultural Explorer:</b> Through an interdisciplinary understanding of intercultural communication - as both an academic discipline and as a tool to promote and engage in global activity, you will explore the concept of culture. Module content and assessments allow you to examine in-depth the role of both culture and language in, for example, the UN sustainability goals.</p> <p><b>Modules available:</b></p> <p><b>The Language Specialist:</b></p> <p>Any Semester 1 Language Module (the level at which you enter will be determined by your previous language learning experiences).</p> <p><b>The Language Taster:</b></p> <p>Any Semester 1 Language Module (the level at which you enter will be determined by your previous language learning experiences)</p> <p><b>The Certificate in TESOL (NB: only available if starting from Level 4):</b></p> <p>ENL-10053 TESOL 1</p> <p>ENL-20007 TESOL 2</p> <p>ENL-30009 TESOL 3</p> <p><b>The Intercultural Explorer:</b></p> <p>ENL-10057 The stories we live by</p> <p>ENL-20009 Who do you think you are?</p>



## Learning Outcomes

The table below sets out what students learn in the programme and the modules in which that learning takes place. Details of how learning outcomes are assessed through these modules can be found in module specifications.

### Level 4

<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Demonstrate knowledge and understanding, at a basic level, of the main scientific and technological principles supporting selected	Human Anatomy and Physiology - PHA-10028
Outline the structures and roles of common biological molecules and describe their chemical and physical properties	Human Anatomy and Physiology - PHA-10028
Identify common organic molecular structures and functional groups and write suitable reaction mechanisms for their interconversion	Human Anatomy and Physiology - PHA-10028
Demonstrate knowledge of the basic thermodynamic principles that govern the progress of chemical reactions both in vitro and in vivo	Human Anatomy and Physiology - PHA-10028
Explain the kinetics of a chemical or biological process, and describe and apply methods for determining the rate of that process both in vitro and in vivo	Human Anatomy and Physiology - PHA-10028
Recognise how the structural features, stereochemistry and functional groups responsible for chemical and physical properties can influence the biological activity of molecules and, hence, the drug design process	Human Anatomy and Physiology - PHA-10028
Develop and employ experimental, analytical and reporting skills in the successful completion of appropriate manipulative practical exercises	Human Anatomy and Physiology - PHA-10028
Acquire data from experiments, analyse and manipulate it using appropriate techniques, and apply methods for the presentation of data, including statistical analysis and choosing an appropriate method of presentation	Human Anatomy and Physiology - PHA-10028
Recognise and apply appropriately the health and safety practices and policies required for a wide range of pharmaceutical science laboratory classes, including appropriate documentation	Human Anatomy and Physiology - PHA-10028
Demonstrate and apply the appropriate levels of numeracy and IT skills requisite for further study in pharmaceutical science at all Levels to perform common scientific calculations with precision and accuracy	Human Anatomy and Physiology - PHA-10028
Recognise the opportunities to target specific cell structures and processes for the treatment of disease	Introduction to Pharmaceutical Science - PHA-10032
Recognise and describe the integration of metabolic processes in the maintenance of homeostasis and the consequences of errors in metabolism	Introduction to Pharmaceutical Science - PHA-10032

<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Recognise the pivotal role played by the gene in living organisms, including patterns of inheritance and human disease, and discuss the molecular aspects of chromosome and gene structure, replication, expression and regulation	Introduction to Pharmaceutical Science - PHA-10032
Describe the basic architecture and cellular diversity of prokaryotic and eukaryotic (plant and animal) cells, making comparisons and distinctions between them	Introduction to Pharmaceutical Science - PHA-10032
Recognise and describe the principles of structure and bonding which affect the 3- dimensional shape of molecules and assign appropriate stereochemical descriptions to organic and biological molecules	Introduction to Pharmaceutical Science - PHA-10032
Recognise how the structural features, stereochemistry and functional groups responsible for chemical and physical properties can influence the biological activity of molecules and, hence, the drug design process	Introduction to Pharmaceutical Science - PHA-10032
Identify common organic molecular structures and functional groups and write suitable reaction mechanisms for their interconversion	Introduction to Pharmaceutical Science - PHA-10032
Describe the cellular and molecular interactions involved in the formation of tissues	Introduction to Pharmaceutical Science - PHA-10032
Describe the structure, fundamental properties and transport across biological membranes, distinguishing the roles played by the lipid and protein components of the membrane	Introduction to Pharmaceutical Science - PHA-10032
Describe the normal anatomy and physiology of various systems within the human body and understand the causes and outcomes of the main types of pathology affecting these systems	Biochemistry & Cell Biology - PHA-10030
Describe the process of drug discovery and development, from target disease to the design and isolation of a pure lead compound for formulation to provide a medicinal product	Biochemistry & Cell Biology - PHA-10030
Describe the underlying principles of quantitative pharmacology in relation to small organic molecules and biomolecules as therapeutic agents, and its relationship to biological processes and pharmaceutical products	Biochemistry & Cell Biology - PHA-10030
Describe the basic aspects of formulation science related to drug distribution and drug action that are important in drug design and development	Biochemistry & Cell Biology - PHA-10030
Describe why a variety of dosage forms are necessary, and the relative merits and demerits of the available forms	Biochemistry & Cell Biology - PHA-10030

<b>Key or Transferable Skills (graduate attributes)</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Develop an open and questioning approach to ideas, demonstrating curiosity, independence of thought and the ability to appreciate a range of perspectives on the natural and social worlds	Human Anatomy and Physiology - PHA-10028 Biochemistry & Cell Biology - PHA-10030 Introduction to Pharmaceutical Science - PHA-10032

<b>Key or Transferable Skills (graduate attributes)</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Develop an appreciation of the development and value of your chosen subjects of study, awareness of their contexts, the links between them, and awareness of the provisional and dynamic nature of knowledge	Human Anatomy and Physiology - PHA-10028 Biochemistry & Cell Biology - PHA-10030 Introduction to Pharmaceutical Science - PHA-10032
Locate, evaluate and synthesise large amounts of frequently conflicting information, ideas and data	Biochemistry & Cell Biology - PHA-10030 Introduction to Pharmaceutical Science - PHA-10032 Human Anatomy and Physiology - PHA-10028
Creatively to solve problems using a range of different approaches and techniques, and to determine which techniques are appropriate for the issue at hand	Introduction to Pharmaceutical Science - PHA-10032 Human Anatomy and Physiology - PHA-10028 Biochemistry & Cell Biology - PHA-10030
Appreciate the social, environmental and global implications of your studies and other activities, including recognition of any ethical implications	Biochemistry & Cell Biology - PHA-10030 Introduction to Pharmaceutical Science - PHA-10032 Human Anatomy and Physiology - PHA-10028
Communicate clearly and effectively in written and verbal forms for different purposes and to a variety of audiences	Biochemistry & Cell Biology - PHA-10030 Human Anatomy and Physiology - PHA-10028 Introduction to Pharmaceutical Science - PHA-10032
Have the knowledge, skills, self-confidence and self-awareness actively to pursue their future goals	Introduction to Pharmaceutical Science - PHA-10032 Biochemistry & Cell Biology - PHA-10030 Human Anatomy and Physiology - PHA-10028
Have the ability and motivation to participate responsibly and collaboratively as an active citizen in the communities in which you live and work	Biochemistry & Cell Biology - PHA-10030 Human Anatomy and Physiology - PHA-10028 Introduction to Pharmaceutical Science - PHA-10032
Professional and reflective approach, including qualities of leadership, responsibility, personal integrity, empathy, care and respect for others, accountability and self-regulation	Biochemistry & Cell Biology - PHA-10030 Introduction to Pharmaceutical Science - PHA-10032 Human Anatomy and Physiology - PHA-10028
Flexibility to thrive in rapidly changing and uncertain external environments and to update skills and knowledge as circumstances require.	Introduction to Pharmaceutical Science - PHA-10032 Biochemistry & Cell Biology - PHA-10030 Human Anatomy and Physiology - PHA-10028
Outline the process of drug design and development from identification of target to formulation	Introduction to Formulation Science - PHA-10036
Demonstrate knowledge of the basic thermodynamic and kinetic principles that govern the progress of chemical reactions both in vitro and in vivo, including in the context of drug and formulation stability	Introduction to Formulation Science - PHA-10036
Describe the basic aspects of formulation science related to drug distribution and drug action that are important in drug design and development, including why a variety of dosage forms is necessary and the relative merits and demerits of the available forms	Introduction to Formulation Science - PHA-10036
Describe how formulation science can be translated across different, but related, fields and how underpinning knowledge can be applied to different end points	Introduction to Formulation Science - PHA-10036
Describe how the physicochemical properties of molecules affect their formulation into medicines and the route of administration to patients	Introduction to Formulation Science - PHA-10036
Describe and explain biopharmaceutics in terms of the relationship between dosage form and interaction of the drug substance with human physiology	Introduction to Formulation Science - PHA-10036
Determine the purity and composition of compounds using appropriate practical and analytical techniques	Introduction to Formulation Science - PHA-10036

<b>Key or Transferable Skills (graduate attributes)</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Recognise and apply appropriately the health and safety practices and policies required for a wide range of pharmaceutical science laboratory classes, including appropriate documentation	Introduction to Formulation Science - PHA-10036
Acquire data from experiments, analyse and manipulate it using appropriate techniques, and apply methods for the presentation of data, including statistical analysis and choosing an appropriate method of presentation	Introduction to Formulation Science - PHA-10036
Demonstrate and apply the appropriate levels of numeracy and IT skills requisite for further study in pharmaceutical science at all levels to perform common scientific calculations with precision and accuracy	Introduction to Formulation Science - PHA-10036
Communicate complex concepts effectively, both orally and in writing in a manner, that reflects professional practice	Introduction to Formulation Science - PHA-10036

## **Level 5**

<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Explain the processes involved in the quality control of all aspects of pharmaceutical drug development, formulation and the manufacturing process.	Pharmaceutical Analysis And Quality Control - PHA-20014
Describe in detail analytical techniques employed to assure quality and safety during the drug development process and the quality, safety and efficacy of the finished drug product.	Pharmaceutical Analysis And Quality Control - PHA-20014
Explain the common techniques used in the analysis of biological data to arrive at safe and appropriate drug selection for a patient.	Pharmaceutical Analysis And Quality Control - PHA-20014
Describe the role of pharmaceutical analysis and quality assurance methods in the context of national and international standards and regulatory processes.	Pharmaceutical Analysis And Quality Control - PHA-20014
Describe the processes involved in the quality assurance of all aspects of pharmaceutical drug development, formulation and the manufacturing process, and how they are applied to the development and production of medicines.	Pharmaceutical Analysis And Quality Control - PHA-20014
Explain the relationship between absorption, distribution, metabolism and elimination of drugs and their physicochemical properties and formulation.	Pharmaceutical Analysis And Quality Control - PHA-20014
Compare and evaluate the efficiency and safety of different routes of drug administration.	Pharmaceutical Analysis And Quality Control - PHA-20014
Demonstrate the relationship between the design of drug product formulation, properties of the formulation, in vitro behaviour and in vivo performance.	Pharmaceutical Analysis And Quality Control - PHA-20014
Demonstrate competence in pharmaceutical calculations related to pharmaceutical quality assurance and quality systems.	Pharmaceutical Analysis And Quality Control - PHA-20014

<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Demonstrate competence in the performance of laboratory techniques in the pharmaceutical sciences and the analysis of data generated therein.	Pharmaceutical Analysis And Quality Control - PHA-20014
Demonstrate knowledge of and apply an integrated approach towards patient care which links pharmaceutical science and pharmaceutical business development.	Applied Pharmaceutical Science I - PHA-20016
Explain how physiological patient factors affect the choice of pharmacological agents to treat disease states based upon absorption, distribution, metabolism and excretion data.	Applied Pharmaceutical Science I - PHA-20016
Explain how drug resistance and drug interactions have consequences for pharmaceutical development and patient care.	Applied Pharmaceutical Science I - PHA-20016
Explain the underpinning concepts in physical chemistry and materials science which underpin drug formulation.	Applied Pharmaceutical Science I - PHA-20016
Evaluate and select processes and formulations appropriate to the manufacture of specified drug products.	Applied Pharmaceutical Science I - PHA-20016
Describe the relevance of microbiology within healthcare practice, and the challenges presented by infection in the context of pharmaceutical development and patient care.	Applied Pharmaceutical Science I - PHA-20016
Describe in detail the metabolic interrelationships of the various tissues and organs of the human body, including the role of hormones in the integration of metabolism and the maintenance of homeostasis.	Applied Pharmaceutical Science I - PHA-20016
Demonstrate competence in pharmaceutical calculations related to pharmacology and pharmaceuticals.	Applied Pharmaceutical Science I - PHA-20016
Demonstrate knowledge of and apply an integrated approach towards patient care which links pharmaceutical science and pharmaceutical manufacturing.	Applied Pharmaceutical Science II - PHA-20018
Explain how patient physiology and pathophysiology affect the drug choice in the context of absorption, distribution, metabolism and excretion (ADME) models.	Applied Pharmaceutical Science II - PHA-20018
Explain the role of drug resistance and drug interactions in pharmaceutical development.	Applied Pharmaceutical Science II - PHA-20018
Explain the underpinning concepts in physical chemistry and materials science which underpin the formulation of parenteral, solid and semi-solid dosage forms.	Applied Pharmaceutical Science II - PHA-20018
Evaluate and select processes and formulations appropriate to the manufacture and testing of specified parenteral, solid and semi-solid dosage forms.	Applied Pharmaceutical Science II - PHA-20018
Describe the relevance of microbiology within the context of medicinal product quality.	Applied Pharmaceutical Science II - PHA-20018
Describe in detail the metabolic interrelationships of the various tissues and organs of the human body, including the role of hormones in the integration of metabolism and the maintenance of homeostasis.	Applied Pharmaceutical Science II - PHA-20018

<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Demonstrate competence in pharmaceutical calculations related to pharmacology and pharmaceuticals including a focus on parenteral, semi-solid, solid and particulate dose forms, with reference where appropriate to pharmacopoeial standards.	Applied Pharmaceutical Science II - PHA-20018
Recognise the role of the skin in percutaneous absorption, including dermal and transdermal delivery.	Applied Pharmaceutical Science II - PHA-20018

<b>Key or Transferable Skills (graduate attributes)</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Develop an open and questioning approach to ideas, demonstrating curiosity, independence of thought and the ability to appreciate a range of perspectives on the natural and social worlds	Pharmaceutical Analysis And Quality Control - PHA-20014 Applied Pharmaceutical Science I - PHA-20016 Applied Pharmaceutical Science II - PHA-20018
Develop an appreciation of the development and value of your chosen subjects of study, awareness of their contexts, the links between them, and awareness of the provisional and dynamic nature of knowledge	Applied Pharmaceutical Science I - PHA-20016 Applied Pharmaceutical Science II - PHA-20018 Pharmaceutical Analysis And Quality Control - PHA-20014
Acquire information literacy: the ability to locate, evaluate and synthesise large amounts of frequently conflicting information, ideas and data	Applied Pharmaceutical Science I - PHA-20016 Applied Pharmaceutical Science II - PHA-20018 Pharmaceutical Analysis And Quality Control - PHA-20014
Develop the ability creatively to solve problems using a range of different approaches and techniques, and to determine which techniques are appropriate for the issue at hand	Applied Pharmaceutical Science I - PHA-20016 Applied Pharmaceutical Science II - PHA-20018 Pharmaceutical Analysis And Quality Control - PHA-20014
Develop an appreciation of the social, environmental and global implications of your studies and other activities, including recognition of any ethical implications	Pharmaceutical Analysis And Quality Control - PHA-20014 Applied Pharmaceutical Science II - PHA-20018 Applied Pharmaceutical Science I - PHA-20016
Develop the ability to communicate clearly and effectively in written and verbal forms for different purposes and to a variety of audiences	Applied Pharmaceutical Science I - PHA-20016 Pharmaceutical Analysis And Quality Control - PHA-20014 Applied Pharmaceutical Science II - PHA-20018
Acquire the knowledge, skills, self-confidence and self-awareness actively to pursue your future goals	Pharmaceutical Analysis And Quality Control - PHA-20014 Applied Pharmaceutical Science II - PHA-20018 Applied Pharmaceutical Science I - PHA-20016
Develop the ability and motivation to participate responsibly and collaboratively as an active citizen in the communities in which you live and work	Applied Pharmaceutical Science I - PHA-20016 Pharmaceutical Analysis And Quality Control - PHA-20014 Applied Pharmaceutical Science II - PHA-20018
Foster a professional and reflective approach, including qualities of leadership, responsibility, personal integrity, empathy, care and respect for others, accountability and self-regulation	Applied Pharmaceutical Science I - PHA-20016 Pharmaceutical Analysis And Quality Control - PHA-20014 Applied Pharmaceutical Science II - PHA-20018
Develop the flexibility to thrive in rapidly changing and uncertain external environments and to update skills and knowledge as circumstances require.	Applied Pharmaceutical Science II - PHA-20018 Applied Pharmaceutical Science I - PHA-20016 Pharmaceutical Analysis And Quality Control - PHA-20014

<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Demonstrate a comprehensive understanding of research techniques and self-management skills in order to plan a programme of research at a professional level	Pharmaceutical Science Research Project - PHA-30025
Critically evaluate current research and advanced scholarship relevant to the chosen research area	Pharmaceutical Science Research Project - PHA-30025
Demonstrate comprehensive knowledge at the forefront of the project area	Pharmaceutical Science Research Project - PHA-30025
Demonstrate the ability to select and develop a research strategy appropriate to the chosen research area	Pharmaceutical Science Research Project - PHA-30025
Accurately undertake data acquisition in the chosen project area	Pharmaceutical Science Research Project - PHA-30025
Show self-direction and originality in tackling and solving problems	Pharmaceutical Science Research Project - PHA-30025
Produce a document detailing the research carried out and a critical appraisal of the findings, and any conclusions drawn and recommendations or hypotheses made as a consequence	Pharmaceutical Science Research Project - PHA-30025
Communicate progress reports and conclusions on the work carried out to specialist and non-specialist audiences	Pharmaceutical Science Research Project - PHA-30025
Communicate complex concepts effectively, both orally and in writing, in a manner that reflects professional work	Pharmaceutical Science Research Project - PHA-30025
Critically evaluate current research and advanced scholarship and practice in selected specialist topics within the pharmaceutical sciences	Current Developments in Pharmaceutical Science - PHA-30019
Communicate complex concepts effectively, both orally and in writing, in a manner that reflects professional practice	Current Developments in Pharmaceutical Science - PHA-30019
Understand systematically and critically appraise the clinical development of pharmaceutical products in the context of global (and hence, harmonisation) marketing, life-cycle management, post-market surveillance and in planning for future products / product extensions	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Demonstrate an in-depth understanding of global pharmaceutical manufacturing in the context of the total global supply chain, including global and local sourcing strategies, supply operations, outsourcing and supply agreements	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Demonstrate a systematic understanding and apply knowledge of leading edge topics in global product commercialisation with regard to its principles, limitations, key marketing and promotion principles, (legal and regulatory) codes of conduct and product termination, underpinned by a knowledge and understanding of the application of global patents and protection of intellectual property	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Demonstrate a systematic understanding and apply the principles of management training in facilitating successful pharmaceutical product development	The Pharmaceutical Industry at the Cutting Edge - PHA-30021

<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Demonstrate a systematic knowledge of concepts from the forefront of the arena of global pharmaceutical product development, from the key underpinning science to the applied and regulatory context	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Synthesise, evaluate and contextualise the key scientific, legal and business information to generate business proposals and product submission dossiers	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Demonstrate a systematic understanding of and practice the concepts of working within the complex team-based and inter-disciplinary global pharmaceutical industry	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Demonstrate an in-depth understanding of the principles of leadership within management teams and practise the application of these concepts within the complex team-based and inter-disciplinary global pharmaceutical industry	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Communicate complex concepts effectively, both orally and in writing, in a manner that reflects professional work	The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Demonstrate a systematic understanding of the actions of drugs in terms of their interactions with physiological systems	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041
Demonstrate a detailed knowledge of the use of drugs to correct disorders of physiological systems	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041
Describe and critically evaluate the role of pharmacotherapy in the management of disease	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041
Demonstrate detailed knowledge of the physicochemical properties of advanced and cutting-edge drug delivery systems	Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043
Demonstrate a systematic understanding of the relationship between in vitro properties of drug delivery systems to their in vivo behaviour	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041 Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043
Select, with detailed rationale, appropriate drug delivery systems for specific patients to maximise the therapeutic benefits	Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043
Review, consolidate, and extend knowledge and understanding of the properties and applications of current and emerging drug delivery systems	Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043
Apply established techniques to acquire laboratory data and critically evaluate data from the literature about the properties of drug delivery systems	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041 Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043
Interpret complex data obtained through experiments to formulate conclusions about the actions of drugs in physiological systems	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041 Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043
Critically evaluate current research and advanced scholarship in pharmaceutical sciences relevant to the chosen research area	Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043 Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041



<b>Subject Knowledge and Understanding</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
Demonstrate an in-depth understanding of analytic and literature evaluation techniques	Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043 Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041
Critically appraise published clinical and experimental data using a structured approach, in order to assess its quality and validity	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041 Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043
Communicate complex concepts effectively, both orally and in writing, in a manner that reflects professional work	Advanced Topics in Pharmaceutical Science (Pharmacology) - PHA-30041 Advanced Topics in Pharmaceutical Science (Pharmaceutics & Drug Delivery) - PHA-30043

<b>Key or Transferable Skills (graduate attributes)</b>	
<b>Learning Outcome</b>	<b>Module in which this is delivered</b>
An open and questioning approach to ideas, demonstrating curiosity, independence of thought and the ability to appreciate a range of perspectives on the natural and social worlds	The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Pharmaceutical Science Research Project - PHA-30025 Current Developments in Pharmaceutical Science - PHA-30019
An appreciation of the development and value of your chosen subjects of study, awareness of their contexts, the links between them, and awareness of the provisional and dynamic nature of knowledge	Pharmaceutical Science Research Project - PHA-30025 Current Developments in Pharmaceutical Science - PHA-30019 The Pharmaceutical Industry at the Cutting Edge - PHA-30021
Information literacy: the ability to locate, evaluate and synthesise large amounts of frequently conflicting information, ideas and data	Current Developments in Pharmaceutical Science - PHA-30019 The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Pharmaceutical Science Research Project - PHA-30025
The ability creatively to solve problems using a range of different approaches and techniques, and to determine which techniques are appropriate for the issue at hand	The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Current Developments in Pharmaceutical Science - PHA-30019 Pharmaceutical Science Research Project - PHA-30025
An appreciation of the social, environmental and global implications of your studies and other activities, including recognition of any ethical implications	Current Developments in Pharmaceutical Science - PHA-30019 Pharmaceutical Science Research Project - PHA-30025 The Pharmaceutical Industry at the Cutting Edge - PHA-30021
The ability to communicate clearly and effectively in written and verbal forms for different purposes and to a variety of audiences	The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Pharmaceutical Science Research Project - PHA-30025 Current Developments in Pharmaceutical Science - PHA-30019
The knowledge, skills, self-confidence and self-awareness actively to pursue your future goals	The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Current Developments in Pharmaceutical Science - PHA-30019 Pharmaceutical Science Research Project - PHA-30025
The ability and motivation to participate responsibly and collaboratively as an active citizen in the communities in which you live and work	The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Current Developments in Pharmaceutical Science - PHA-30019 Pharmaceutical Science Research Project - PHA-30025
A professional and reflective approach, including qualities of leadership, responsibility, personal integrity, empathy, care and respect for others, accountability and self-regulation	The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Current Developments in Pharmaceutical Science - PHA-30019 Pharmaceutical Science Research Project - PHA-30025
The flexibility to thrive in rapidly changing and uncertain external environments and to update skills and knowledge as circumstances require	Pharmaceutical Science Research Project - PHA-30025 The Pharmaceutical Industry at the Cutting Edge - PHA-30021 Current Developments in Pharmaceutical Science - PHA-30019

## 9. Final and intermediate awards

Credits required for each level of academic award are as follows:

<b>Honours Degree</b>	360 credits	<p>You will require at least 120 credits at levels 4, 5 and 6</p> <p>You must accumulate at least 270 credits in your main subject (out of 360 credits overall), with at least 90 credits in each of the three years of study, to graduate with a named single honours degree in this subject.</p> <p>In addition, students whose credits include 60 credits for modules provided by the language centre can, depending on the CEFR-level of those modules, be additionally awarded the notation on their degree certificate of "with competency" or "with advanced competency" in their chosen language.</p>
<b>Diploma in Higher Education</b>	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
<b>Certificate in Higher Education</b>	120 credits	You will require at least 120 credits at level 4 or higher

## 10. How is the Programme Assessed?

The wide variety of assessment methods used on this programme at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used on your programme:

- The assessments used in this programme reflect a wide range of academic practice and are also designed to be relevant to the needs of the industry. For example, the synoptic assessment collates and integrates learning across science and business at Level Five of the programme, whilst the use of batch record sheets in laboratory sessions reflect practice in industry (pharmaceutical and otherwise). The main modes of assessment are examinations (essay-based, short-answer questions and multiple choice questions), laboratory practical exercises (with associated report-writing and documentation completion, as well as physical sample preparation and analysis), workshops (including pharmaceutical calculations), group and individual presentations and synoptic exercises.

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

At all levels (4-6), Low Stakes Assessments (LSAs) have been introduced to aid student engagement on the course. These contribute to a range of assessments at all levels.

## 11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

### Activity

	<b>Scheduled learning and teaching activities</b>	<b>Guided independent Study</b>	<b>Placements</b>
<b>Year 1 (Level 4)</b>	26%	72.3%	1.7%
<b>Year 2 (Level 5)</b>	27.3%	72.7%	0%
<b>Year 3 (Level 6)</b>	29%	71%	0%

## 12. Accreditation

This programme is not currently accredited by an external body. However, discussions have begun with the Academy of Pharmaceutical Sciences and The Royal Society of Chemistry to begin the process of accreditation by both those bodies. Students will be updated as appropriate to any changes in the status of these processes.

## 13. University Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at:

<http://www.keele.ac.uk/student-agreement/>

## 14. What are the typical admission requirements for the Programme?

See the relevant course page on the website for the admission requirements relevant to this programme:

<https://www.keele.ac.uk/study/>

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Science Foundation Year (SFY) programme. Progression from the SFY to the first year of the BSc Pharmaceutical Science programme requires students to achieve a minimum of 60% overall and in each module studied.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 7.0 overall, with a minimum of 6.5 in each sub-component, or equivalent.

### English for Academic Purposes

Please note: All new international students entering the university will provide a sample of Academic English during their registration. Using this sample, the Language Centre may allocate you to an English language module which will become compulsory. This will replace any GCP modules. *NB:* students can take an EAP module only with the approval of the English Language Programme Director and are not able to take any other Language modules in the same academic year.

English Language Modules at Level 4:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2)
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

English Language Modules at Level 5:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2)
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

English Language Modules at Level 6:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2); ENL-90005 Advanced Business English Communication
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-

**Recognition of Prior Learning (RPL)** is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here:

<https://www.keele.ac.uk/ga/programmesandmodules/recognitionofpriorlearning/>

## 15. How are students supported on the programme?

### *Keele Online Learning Environment*

New students will be assigned a username and password that provides access to the main University network, email and the Internet. Keele Learning Environment (KLE) - The KLE is used by Keele to provide every student and member of staff with a personal teaching and learning workspace that can be accessed through the internet. This is where you will find all the teaching materials that are associated with the course. You will also find copies of all the BSc Pharmaceutical Science guidance documents and a section where you can access careers support information, as well as the teaching materials for the BSc course.

You should regularly access the KLE, ideally on a daily basis, since it provides the most accurate and up-to-date information with regard to your course. Online help for the KLE can be found here:

<http://www.keele.ac.uk/klehelp>. New students will be provided with log-in details and an introductory session on the use of the KLE soon after registration.

### *Communication with Students*

The School of Pharmacy and Bioengineering and other University services will contact you intermittently with important information related to your studies. The primary channel for communication will be your Keele email address. It is expected that you will check your Keele email regularly, and you are responsible for reading University emails and taking action if appropriate. The secondary channel for communication is through the post so please ensure that you keep your address details up-to-date on SCIMS. This information may include details of assessments and notification of changes to teaching sessions. The School of Pharmacy and Bioengineering will not send information to any personal email addresses.

### *Sources of help and advice*

You will find that all staff associated with the School of Pharmacy and Bioengineering - for both the MPharm and BSc programmes - are friendly and approachable, and you should not feel worried or inhibited about going to see them at any time. Please do not hesitate to contact your Academic Mentor, your Year Tutor, the Director of Education for the BSc or MPharm or, if you prefer, any other member of staff if you require help or advice on any matter that affects your academic progress or any other aspect of your life at Keele.

There is a wide spectrum of support available to students on the Pharmaceutical Science programme. These range from the institution-level student support services to the specific one-to-one support offered by the academic mentoring system. Every student is allocated to an academic member of staff, normally based within the School, to act as an academic mentor at the start of their studies. Academic mentors (see section below) also act as a first point of contact for students on non-academic issues which may affect their learning and can refer students on to a range of specialist health, welfare and financial services co-ordinated by the University's Student Services. In addition to the provision of pastoral support, academic mentors provide feedback on assessments; this is particularly important in relation to students' first experiences of assessment in Level 4 where early feedback is particularly important in helping students to adjust to higher education.

Each School has a Student Experience and Support Officer (SECO). The SESO's role is to help support students with their studies, and further information can be found at:

<https://www.keele.ac.uk/students/studentsservices/studentexperienceandsupport/>

The university Disability Support & Inclusion Team work with staff across the university to provide students with the individual support they may need during their studies at Keele. They can be contacted in various ways, and further information can be found at their website:

<https://www.keele.ac.uk/students/lifeoutsideofstudy/disabilitysupportandinclusion/>

In the first instance, each Faculty within the university has a designated Disability Adviser, and they are normally your first port of call for support.

To support students in finding employment or courses for further study, and for vacation employment, careers events are embedded within the course to supplement the opportunities that students have to engage with potential employers on placements. A separate careers section is also available on the KLE to highlight opportunities available.

### *Academic Mentors*

Your Academic Mentor is a first point of contact for general guidance on academic and career development and, in consultation with yourself, may refer you to specialist academic support services within the University. Your Academic Mentor can also provide advice, support and general guidance on non-academic issues or, again, in consultation with yourself refer you to pastoral support services within the University, where necessary. Your Academic Mentor will be a member of staff associated with the School of Pharmacy and Bioengineering.

It is important that you inform your Academic Mentor or the year / module tutor of any circumstances, medical or otherwise, that may affect your academic work.

Your Academic Mentor may have particular office hours or you may have to arrange an appointment; you should contact your Academic Mentor by telephone or email if you wish to discuss a particular issue but do not hesitate to approach your Mentor immediately if there is a problem that you wish to discuss urgently. If you cannot contact your Academic Mentor, you may contact the Senior Mentor, Dr Gary Moss, Programme Director, who oversees the Academic Mentoring system for the BSc programme. You can find the University's Code of Practice for Academic Mentoring at: <https://www.keele.ac.uk/policyzone/data/academicmentoringcodeofpractice/>

### *Reference requests*

You should always give the name and contact details of your Academic Mentor if you are asked to provide a contact for references when applying for jobs. It is courteous always to let your Mentor know each time that you give their contact details to someone, so that they are aware that they may be approached.

Your first point of contact should always be your Academic Mentor, but you may also approach other members of the academic staff to write a reference for you but only if more than one academic reference is required or if your Mentor is unable to provide a reference. In these circumstances you must ask the permission of that person in advance. In addition to being a professional courtesy, this is to ensure that staff members are aware that they may be approached by employers.

Your Mentor or other referees will ensure that it is as accurate as possible and will familiarise themselves with both your academic performance and the levels of application and professionalism that you have demonstrated during your time on the course. Please note that if your attendance record is poor or if you have been found guilty of academic misconduct or unprofessional behaviour then this may be reflected in your reference, and hence may jeopardise your chance of success with your application. You should note that nowadays employers routinely ask whether students have been subject to fitness to practise investigations.

### *Progress interviews with your Academic Mentor*

If you are new to the programme you will be introduced to your Academic Mentor in your second week.

All students will meet regularly with Academic Mentors throughout their time at Keele. There will be reminders in your timetable when the meetings are due throughout the year. The meetings are to give feedback on your academic progress, and to give you the opportunity to raise any matters of concern.

Meetings with your Mentor are treated in confidence. A note of the meeting will be kept on your personal record but access to this is limited. If it is necessary to keep details of sensitive information, such as medical conditions relating to missed assessments, then access to this type of information is strictly limited.

### *Additional help and Guidance*

Additional information relating to student welfare and support can be found through:

#### *Advice and Support at Keele - ASK*

Located on the ground floor of KeeleSU (the Students' Union), ASK delivers independent advice on a whole range of issues, including academic, health, family, wellbeing, accommodation, finance, legal, international and employment. The advice and support that ASK offers is free, confidential, non-judgemental and impartial. Our trained Education and Welfare Advisors are here to help, just ASK. For more information, please visit [www.keelesu.com/advice](http://www.keelesu.com/advice) or come and see us between Mon-Fri 10.00am to 12.30pm and 1.00pm to 4.00pm.

## **16. Learning Resources**

The PC suite in the Atrium of the Lennard-Jones laboratories is available during normal working hours and evenings. The PCs run a variety of programs relevant to the Pharmacy programme and you can access the Internet and email, but please show consideration for other users and don't spend excessive periods on social activities. You can also print lecture notes and laboratory scripts from these computers. You must not eat, drink or use a mobile telephone in the PC suite. Photocopiers for student use are available in the University Library.

### **The University Library**

The University Library's mission is to provide effective access to all forms of academic information in support of the University's teaching, learning and research. We have two Library sites, the main Campus Library and the

Health Library at the Royal Stoke Hospital. We offer over 1,100 study spaces and extensive opening hours - the Campus Library is open 24/7 during semester and the Health Library seven days a week all year (except bank holidays). Students can work in a variety of study environments, ranging from group to silent study, and can also book rooms for either purpose. There's also a refreshment area in the Campus Library, and Wi-Fi access is available on both our sites. Our academic collections are provided both online and in print. We subscribe to around 20,000 e-journals, 300,000 e-books and have over 600,000 items on our shelves. Students can access many reading lists online, and our "Catalogue Plus" service can be used to find relevant information both in print and online via a single easy-to-use web catalogue. Books can normally be borrowed for two weeks, one week or one day, depending on demand for the title. Students can get help from our staff at the Library's InfoPoint, and throughout the year. Liaison Librarians provide an extensive range of training tailored to help students with their research and information skills. Find out more about our services from our website: <http://www.keele.ac.uk/library/>. Accessing e-journals off campus - Access to Keele's e-resources is through your Keele username and password. When you reach the journal home page look out for a link called "institutional log-in" or "Shibboleth log-in", select the UK Federation and then Keele University and log in using your IT Account username and password (the log-in you use to access the Campus network) when you reach the usual yellow Keele log-in screen. Visit <http://www.keele.ac.uk/library/support/access/> for more information, including our Off-campus Access Step by Step guide and a series of short you-tube videos to assist with off-campus log-ins to each individual publisher.

Please note that past examination papers from the BSc Pharmaceutical Science programme are currently not made available via the library, or from any other source. While it is important that you are familiar with the format of exams and assessments, when it comes to passing it is much more important that you understand the material that you have learned in the module. Sample questions and / or sample exam papers will be made available via the KLE where appropriate to ensure that students are familiar with the style of questions used in any given exam paper. If you have any comments concerning the provision of materials in the University Library you should ask your representative on the SSVc to raise the matter at a BSc Pharmaceutical Science Course Committee meeting.

## **IT Services**

IT Services are responsible for your IT systems and networks throughout the University. The services include the wireless network, printing service, IT Suite and Labs, Laptop Loan and Laptop repair service. They provide help and advice on using Keele Systems such as the Keele Learning Environment, eVision, Office software or Google Mail and apps and advice when connecting to the wireless network (eduroam). Eduroam is now available at the Royal Stoke Hospital site, enabling student access to the internet whilst on placement.

The IT Service Desk is the first point of call for anything IT related. It is based in the Campus Library and IT Services building and is open 7 days per week throughout the Semester. For further information regarding IT Services, or to report a problem or seek advice please visit [www.keele.ac.uk/it](http://www.keele.ac.uk/it).

Within the School of Pharmacy and Bioengineering there is a team of IT technicians who are responsible for the day-to-day IT needs of the School, including network issues and more specialised software used by the School. They can be contacted at [pharmacy.it@keele.ac.uk](mailto:pharmacy.it@keele.ac.uk)

Remember when using Keele University IT systems that you are bound by the IT Conditions of Use, a link which can be found at: [www.keele.ac.uk/it](http://www.keele.ac.uk/it). It is important that you familiarise yourself with these to ensure that you use the systems within the terms of the Acceptable Use Policy.

Keep yourself safe whilst online:

- Make sure that before connecting to the network your antivirus, web browser and operating system are all up to date.
- Protect your personal information. Secure your account by changing your password to something that is memorable but secure, a combination of capital and lowercase letter.
- Ensure that your online presence, particularly in social media, has the security set to a level you are comfortable with.
- If you receive an email or message that sounds too good to be true you are probably best deleting it. Do not give out personal information to a non-accredited website or link.

If in doubt about staying safe whilst online, check with someone you can trust like IT Services.

## **17. Other Learning Opportunities**

### **Study abroad (semester)**

Students on the programme have the potential opportunity to spend a semester abroad in their second year studying at one of Keele's international partner universities. Please note that students cannot take both a Global Challenge Pathway (GCP) and the semester abroad option.

Exactly which countries are available depends on the student's choice of degree subjects. An indicative list of countries is on the website (<http://www.keele.ac.uk/studyabroad/partneruniversities/>); however this does not guarantee the availability of study in a specific country as this is subject to the University's application process for studying abroad.

No additional tuition fees are payable for a single semester studying abroad but students do have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad to be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Whilst students are studying abroad any Student Finance eligibility will continue, where applicable students may be eligible for specific travel or disability grants. Students who meet external eligibility criteria may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible for income dependent bursaries at Keele. Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

## 18. Additional Costs

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation. We do not anticipate any further costs for this undergraduate programme.

## 19. Quality management and enhancement

The quality and standards of learning in this programme are subject to a continuous process of monitoring, review and enhancement.

- The School Education Committee is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Revalidation process.

Student evaluation of, and feedback on, the quality of learning on every module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of annual programme review.
- Findings related to the programme from the annual National Student Survey (NSS), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the programme is considered and acted on at regular meetings of the Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:

<http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/>

## 20. The principles of programme design

The programme described in this document has been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

**a.** UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education:

<http://www.qaa.ac.uk/quality-code>

**b.** Keele University Regulations and Guidance for Students and Staff: <http://www.keele.ac.uk/regulations>

## Version History

### This document



**Date Approved:** 03 June 2024

### ***What's Changed***

PHA-10038 added.

### **Previous documents**

<b>Version No</b>	<b>Year</b>	<b>Owner</b>	<b>Date Approved</b>	<b>Summary of and rationale for changes</b>
1.1	2023/24	GARY MOSS		
1	2023/24	GARY MOSS	04 July 2023	