

KEY PROGRAMME INFORMATION

Originating institution(s) Wiltshire College	Faculty responsible for the programme Faculty of Science and Technology
Final award(s), title(s) and credits FdSc Pharmaceuticals - 120 (60 ECTS) Level 4 / 120 (60 ECTS) Level 5 credits	
Intermediate award(s), title(s) and credits Cert HE Pharmaceuticals - 120 (60 ECTS) Level 4 credits	
UCAS Programme Code(s) (where applicable and if known) 940F	HECoS (Higher Education Classification of Subjects) Code and balanced or major/minor load. 100251 Pharmacy (50%) 100423 Pharmaceutical Chemistry (50%)
External reference points The UK Quality Code for Higher Education Part A: Setting and maintaining academic standards Chapter A1: UK and European reference points for academic standards (October 2013) - incorporates the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (Qualification Frameworks), Foundation Degree qualification benchmark	
Professional, Statutory and Regulatory Body (PSRB) links Not Applicable	
Places of delivery Wiltshire College – Salisbury Campus	
Mode(s) of delivery Full time 2 years Part time 3 years	Language of delivery English
Typical duration 1 year level 4 1 year level 5	
Date of first intake September 2021	Expected start dates September
Maximum student numbers Not Applicable	Placements Not Applicable
Partner(s) Wiltshire College	Partnership model Franchise
Date of this Programme Specification September 2020	
Version number 1.1-0921	
Approval, review or modification reference numbers E20171879 FST 1920 23	
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Programme Specification – Section 1

PROGRAMME STRUCTURE

Programme Award and Title: FdSc Pharmaceuticals								
Year 1 / Level 4								
Students are required to complete 6 core units								
Unit Name	Core / Option	No of credits	Assessment Element Weightings			Expected contact hours per unit	Unit version no.	HECoS Code (plus balanced or major/minor load)
			Exam 1	Cwk 1	Cwk 2			
Essential Biology and Physiology	Core	20	50	50	-	80	v1.0	100350 100%
Mathematics for Science	Core	20	-	100	-	60	v1.0	100400 100%
Academic Writing Skills	Core	20	-	100	-	30	v1.0	101090 100%
Introduction to Pharmaceuticals and Science	Core	20	60	40	-	90	v1.0	100251 100%
Fundamental Chemistry	Core	20	-	40	60	90	v1.0	100344 100%
Practical Laboratory Skills	Core	20	-	50	50	80	v1.0	100392 100%
Progression requirements: Requires 120 credits at Level 4								
Exit qualification: Cert HE Pharmaceuticals (requires 120 credits at Level 4)								

Year 2 / Level 5								
Students are required to complete 6 core units								
Unit Name	Core / Option	No of credits	Assessment Element Weightings			Expected contact hours per unit	Unit version no.	HECoS Code (plus balanced or major/minor load)
			Exam 1	Cwk 1	Cwk 2			
Professional Development Portfolio	Core	20	-	100	-	25	v1.0	101278 100%
Advanced Chemistry for Pharmaceuticals	Core	20	-	50	50	100	v1.0	100423 100%
Work Related Project	Core	20	-	60	40	30	v1.0	101278 100%
Physiological Biochemistry	Core	20	60	40	-	90	v1.0	100344 100%
Pharmacodynamics and Kinetics	Core	20	50	50	-	70	v1.0	100251 100%
Bioanalytical Techniques	Core	20	-	30	70	100	v1.0	100962 100%
Progression requirements: Requires 120 credits at Level 5								
Exit qualification: FdSc Pharmaceuticals (requires 120 credits at Level 4 and 120 credits at Level 5)								

AIMS OF THE DOCUMENT

The aims of this document are to:

- Define the structure of the programme.
- Specify the programme award titles.
- Identify programme and level learning outcomes.
- Articulate the regulations governing the awards defined within the document.

AIMS OF THE PROGRAMME

First, the aim of the programme is to develop a knowledge of the physio-chemical and biological principles necessary to understand the sourcing, preparation, analysis and properties of medicinal agents. This will include the design, delivery, mode of action, therapeutic application and clinical usage of medicines. The FdSc in Pharmaceuticals will give the student sufficient vocational skills and knowledge to be attractive to employers at the end of the two years study. An additional third year on the top-up course to achieve a full BSc Degree would place all the knowledge gained and skills developed to good use in the scientific field.

Year one of the FdSc in Pharmaceuticals lays the foundation for the units encountered in year two and potentially year three.

The number of students at any one year will be relatively small so all students will have maximum support from each module and personal tutor. This will inevitably be required as students learn new scientific and mathematical skills. Students will be required to research current topics in their area of study and a specific module has been designed in the first year to help them understand how best to achieve this.

Overall, the course is intended to produce students who are 'fit for work' with the theoretical and practical knowledge which would benefit any employer in the pharmaceutical scientific field.

This programme aims to develop critically informed, agile and resourceful graduates who can:

- Develop their interest in and understanding of the pharmaceutical sciences by following a high-quality educational curriculum
- Understand the key scientific issues required for a successful career in the pharmaceutical and related industries
- Demonstrate a strong knowledge base of the formulation, analysis and delivery of drugs and medicines and how they act physiologically
- Demonstrate an understanding of regulatory and quality assurance issues in the pharmaceutical industry
- Develop practical laboratory skills relevant to pharmaceutical science
- Demonstrate a range of key skills and employability skills to enable them to make a valuable contribution to society and be equipped with the necessary skills and experience to be life-long learners

This programme will support students who have a strong interest in Pharmaceutical Science and know they want to pursue a career in the Pharmaceutical Science industry. The course will offer students the opportunity to apply to become laboratory technicians which links with the relationship we have with the NHS and Tetricus park.

Wiltshire College has secured a £28.1 million investment from the Swindon and Local Enterprise Partnership (SWLEP). This funding is being used to support the development of undergraduate courses and feeder courses in Life Sciences at both the Salisbury and Lackham campuses and Agri-Tech at the Lackham campus. The funding will also be used to construct a 3,500 sq m Life Sciences and Engineering Centre at Salisbury and a 2,400 sq m Agricultural Technology Centre and a Higher Education centre at Lackham.

The advancing area of Life Sciences and Agri-Tech has foundations in Wiltshire with the Tetricus Science Park based near Salisbury, Wiltshire. This Science Park is a collaboration of three partners, Defence Science and Technology Laboratories (DSTL), GWE Business West and New Sarum

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Enterprises. The College already has good relationships with Porton Down as well as the NHS where established and successful collaborative work takes place. As an institution, we are proactively involved in the upskilling of the regional work force by engaging with businesses, industry and the military to develop Higher Education courses.

The Swindon and Wiltshire Local Enterprise Partnership (SWELP) Strategic Economic Plan means that there is an increased demand for employment; the projected growth for the area is 17,500 jobs between 2010 and 2020. In Wiltshire, the proportion of 25-29 year olds with degrees is 33.0% compared with 42.2% in England. Wiltshire Council identifies in their Education, Employment and Skills Strategy (2014-2020) that by 2020 approximately 65% of the jobs growth will require a level 4 qualification and above. By 2020, it is projected that more than 1 in 4 jobs will be at the higher end of the occupational spectrum (Level 3+). There is also a demographic change in the county, which includes an aging workforce, an increased birth rate that will impact on education as well as the resettlement of 4,000 Army personnel and their families.

ALIGNMENT WITH THE UNIVERSITY'S STRATEGIC PLAN

A Foundation Degree (FdSc) in Pharmaceuticals is proposed as a partnership between Wiltshire College and Bournemouth University. The FdSc addresses the STEM curriculum development strategy of the college and the aspiration of the university to widen participation in the Life Sciences and has been developed following extensive discussions and collaboration between the partners. It is anticipated that the FdSc in Pharmaceuticals will be offered from September 2019.

This proposal aims to widen participation in Higher Education and improve the skills and qualifications of those across the county of Wiltshire and beyond by providing the qualification from 2 local bases at Salisbury and Lackham. It will offer a suitable progression route from the BTEC Applied Science or Forensic Science award offered at Wiltshire College and neighbouring colleges and should offer enhanced employment opportunities within the disciplines of chemical, biological and medical sciences.

The overarching aim of the programme is that students complete the programme and gain a recognised academic qualification plus the added vocational / employability factors that future employers seek which are embedded throughout the programme.

The FdSc in Pharmaceuticals will appeal to those who have an interest in science and who also want to have maximum flexibility in terms of career progression in science industries and place of study. The programme has been designed to be highly practical and as such provide a wide range of skills which are transferable and relevant to several areas of science. Recruitment for the FdSc in Pharmaceuticals is also to be targeted to school leavers having achieved a level 3 qualification but who do not want to leave the locality in order to achieve higher qualifications.

Wiltshire College has partnerships with many companies and organisations within the county of Wiltshire and it is hoped specific programmes with the Foundation Degree suite would be attractive for these companies to support CPD opportunities to their staff, specifically those on an apprenticeship scheme.

Following successful completion of the FdSc in Pharmaceuticals, the students may have an opportunity to progress directly into the third year of a related degree Programme at Bournemouth University in order to attain the award of an Honours Degree.

Bournemouth University has extensive experience in the development and delivery of high-quality, accredited Science degree programmes and is in an excellent position to be able to work with Wiltshire College to develop both courses to offer students opportunities for employment within the fields of pharmaceutical science.

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LEARNING HOURS AND ASSESSMENT

Bournemouth University licensed programmes are composed of units of study which are assigned a credit value indicating the amount of learning undertaken. The minimum credit value of a unit is normally 20 credits, above which credit values normally increase at 20-point intervals. 20 credits is the equivalent of 200 study hours required of the student, including lectures, seminars, assessment and independent study. 20 University credits are equivalent to 10 European Credit Transfer System (ECTS) credits.

The assessment workload for a unit should consider the total time devoted to study, including the assessment workload (i.e. formative and summative assessment) and the taught elements and independent study workload (i.e. lectures, seminars, preparatory work, practical activities, reading, critical reflection).

Assessment per 20 credit unit should normally consist of 3,000 words or equivalent. Dissertations and Level 6 and 7 Final Projects are distinct from other assessment types. The word count for these assignments is 5,000 words per 20 credits, recognising that undertaking an in-depth piece of original research as the capstone to a degree is pedagogically sound.

STAFF DELIVERING THE PROGRAMME

Students will usually be taught by a combination of senior academic staff with others who have relevant expertise including, where appropriate, according to the content of the unit, academic staff, qualified professional practitioners, demonstrators / technicians and research students.

INTENDED LEARNING OUTCOMES – AND HOW THE PROGRAMME ENABLES STUDENTS TO ACHIEVE AND DEMONSTRATE THE INTENDED LEARNING OUTCOMES

LEVEL 5 / Dip HE INTENDED LEVEL OUTCOMES

<p>A: Knowledge and understanding</p> <p>This level provides opportunities for students to develop and demonstrate knowledge and understanding of:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>A1 Illustrate a comprehensive and detailed knowledge of Chemistry and Biology with areas of specialisation in depth</p> <p>A2 Understand and know methods for chemical synthesis of pharmaceutical substances usually by organic chemistry reaction pathways and combinatorial chemistry</p> <p>A3 Demonstrate an ability to carry out scientific calculations to the required degree of accuracy and precision</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (A1-3, A5-6) • Practicals (A2, A5-6) • Seminars (A1-3) • Directed reading (A4) • Use of the VLE (A6) • Independent research (A4)
<p>A4 Utilise effective research methods to analyse and evaluate appropriate literature in science</p> <p>A5 Understand the physiological and biochemical signalling pathways and how pharmaceutical drugs may be utilised</p>	<p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Open book examinations (A1-3, A5-6)

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<p>A6 Understand the theory and carry out practical aspects in Chemistry and Biology</p>	<ul style="list-style-type: none"> • Closed book examinations (A1-3, A5-6) • Practical write-up (A1-3, A6) • Literature review (A2, A4-5) • Presentation (A2, A4-5) • Problem solving (A5)
<p>B: Intellectual skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>B1 Critically evaluate theory and practice</p> <p>B2 Be creative in the solution of problems and in the development of research activity</p> <p>B3 Analyse and synthesise information identifying implicit values detecting false logic or reasoning and ensuring that conclusions are supported by evidence</p> <p>B4 Integrate and evaluate information from a variety of sources in order to gain a coherent understanding of theory and practice</p> <p>B5 Interpret and evaluate experimental data to yield analytical information</p> <p>B6 Formulate and test hypotheses whilst applying professional judgement to balance risks, costs, benefits, safety, reliability, aesthetics and environmental impact</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (B3-5) • Practicals (B5-6) • Seminars (B4) • Directed reading (B3) • Use of the VLE (B2-4) • Independent research (B6) <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Open book examinations (B3-5) • Closed book examinations (B3-5) • Practical write-up (B1-2) • Literature review (B4-6) • Oral exam (B3-6) • Presentation (B3-5) • Problem solving (B3)
<p>C: Practical skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>C1 Demonstrate confidence and competence in the use of information technologies including working effectively in an online environment</p> <p>C2 Undertake competent, safe, evaluative, reflective and effective practice</p> <p>C3 Conduct research into scientific issues either individually or as part of a team</p> <p>C4 Analyse experimental results and determine their strength and validity</p> <p>C5 Act autonomously with minimal supervision or direction within agreed guidelines</p> <p>C6 Prepare and present scientific reports</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (C5) • Practicals (C2-4, C6) • Seminars (C5) • Directed reading (C1-2) • Use of the VLE (C1, C3) • Independent research (C1, C3) <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Open book examinations (C4) • Closed book examinations (C4) • Practical write-up (C2-6) • Literature review (C1, C3, C5)

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	<ul style="list-style-type: none"> • Oral exam (C2, C5) • Presentation (C3, C5) • Problem solving (C1, C4, C6)
<p>D: Transferable skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>D1 Perform effectively when working in collaboration with others</p> <p>D2 Manage own roles, responsibilities and time; undertake personal and career development; utilise skills in new and changing situations and contexts</p> <p>D3 Relate to and interact effectively with individuals and groups including working effectively as a team member</p> <p>D4 Communicate effectively using verbal and / or non-verbal means including receiving, responding to and presenting information in a variety of visual forms</p> <p>D5 Manage tasks and identify and solve problems using information sources and apply numerical skills and techniques</p> <p>D6 Demonstrate an ability to reflect critically on own scientific abilities and skills analysing own strengths and weaknesses</p> <p>D7 Demonstrate an ability to work autonomously to complete a project within strict guidelines and time scales</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (D2) • Practicals (D1, D3-D6) • Seminars (D2, D5) • Directed reading (D2, D5, D7) • Use of the VLE (D6) • Independent research (D1-2, D6-7) <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Open book examinations (D2, D5-6) • Closed book examinations (D2, D5-6); • Practical write-up (D2, D5-7) • Literature review (D1-2, D5, D7) • Oral exam (D2-3, D5) • Presentation (D1-5) • Problem solving (D2, D5-7)

LEVEL 4 / Cert HE INTENDED LEVEL OUTCOMES

<p>A: Knowledge and understanding</p> <p>This level provides opportunities for students to develop and demonstrate knowledge and understanding of:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>A1 Understand the fundamental concepts, principles and theories of Chemistry and Biology</p> <p>A2 Apply appropriate techniques to solve scientific problems</p> <p>A3 Utilise effective research methods to analyse and evaluate literature in science</p> <p>A4 Understand the theory and carry out practical aspects in Chemistry and Biology</p> <p>A5 Demonstrate an ability to carry out scientific calculations to the required degree of accuracy and precision</p> <p>A6 Apply appropriate techniques to elucidate chemical structures from spectroscopic data</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (A1-2, A4-6) • Practicals (A1-2, A4-5) • Seminars (A1-6) • Directed reading (A6) • Use of the VLE (A6) • Independent research (A1-6) <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Closed book examinations (A1-2, A4-6)

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	<ul style="list-style-type: none"> • Practical write-up (A1-2, A4-5) • Literature review (A2, A4-5) • Presentation (A3) • Problem solving (A6)
<p>B: Intellectual skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>B1 Critically evaluate theory and practice</p> <p>B2 Be creative in the solution of problems and in the development of research activity</p> <p>B3 Analyse and synthesise information identifying implicit values detecting false logic or reasoning and ensuring that conclusions are supported by evidence</p> <p>B4 Integrate and evaluate information from a variety of sources in order to gain a coherent understanding of theory and practice</p> <p>B5 Integrate evidence from a range of sources to support findings and hypotheses.</p> <p>B6 Formulate and test hypotheses whilst applying professional judgement to balance risks, costs, benefits, safety, reliability, aesthetics and environmental impact</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (B3-5) • Practicals (B3-5) • Seminars (B1-5) • Directed reading (B3) • Use of the VLE (B3-5) • Independent research (B3) <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Closed book examinations (B3-5) • Practical write-up (B1-3) • Literature review (B3, B6) • Oral exam (B1-5) • Problem solving (B5, B6)
<p>C: Practical skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>C1 Demonstrate confidence and competence in the use of information technologies including working effectively in an online environment</p> <p>C2 Undertake competent, safe, evaluative, reflective and effective practice</p> <p>C3 Conduct research into scientific issues either individually or as part of a team</p> <p>C4 Analyse experimental results and determine their strength and validity</p> <p>C5 Act autonomously with minimal supervision or direction within agreed guidelines</p> <p>C6 Prepare and present scientific reports</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (C1-5) • Practicals (C1-6) • Seminars (C1-6) • Directed reading (C1) • Use of the VLE (C1, C6) • Independent research (C3, C6) <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Closed book examinations (C4) • Practical write-up (C2-6) • Literature review (C1, C3, C5) • Oral exam (C2, C5) • Presentation (C3, C5) • Problem solving (C1, C4)
<p>D: Transferable skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to</p>

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	demonstrate the level learning outcomes:
<p>D1 Perform effectively when working in collaboration with others</p> <p>D2 Manage own roles, responsibilities and time; undertake personal and career development; utilise skills in new and changing situations and contexts</p> <p>D3 Deploy a range of interpersonal skills including effective listening, negotiating, persuasion and presentation</p> <p>D4 Relate to and interact effectively with individuals and groups including working effectively as a team member</p> <p>D5 Communicate effectively using verbal and / or non-verbal means including receiving, responding to and presenting information in a variety of visual forms</p> <p>D6 Manage tasks and identify and solve problems using information sources and apply numerical skills and techniques</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Lectures (D2) • Practicals (D1, D3-D6) • Seminars (D2, D5) • Directed reading (D2, D5) • Use of the VLE (D6) • Independent research (D1, D2, D6) <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Closed book examinations (D2, D5-6); • Practical write-up (D2, D5-6) • Literature review (D1-2, D5) • Oral exam (D2-3, D5) • Presentation (D1-5) • Problem solving (D2, D5-6)

ADMISSIONS REGULATIONS

The regulations for this programme are the University's Standard Undergraduate Admission Regulations.

Applicants should normally be at least 18 years of age by 31 December in the year of entry.

Applicants should confirm their ability to study on a Foundation Degree by presenting evidence of:

- 48 UCAS tariff points (normally to include Biology), e.g. 2Es or 1C at A2 level or an AVCE Double Award at EE or BTEC/City and Guilds National Technical Diploma.
- Additionally, candidates will normally be expected to present passes at Grade C or above in at least three other subjects (double or triple science) at GCSE level or equivalent; passes at Grade C and above in English and Mathematics will be normally expected.

Or

- Learning through experience, demonstrated in portfolios or records of achievement, and/or by specific learning tasks set at interview and confirmed by employer reference(s).

Or

- A combination of academic and experiential learning to be considered on its individual merits.

Applicants are required to demonstrate a set of basic skills required to fulfil the demands of the programme:

- An ability to express themselves in written English.
- Basic numerical skills.
- A basic understanding of science.

These skills should be demonstrated at levels equivalent to GCSE Grades A-C. To this end, applicants may offer:

- GCSE GCE or CSE results.
And/or
- Results of appropriate BTEC or Access programmes to science courses.
And/or
- An accredited record of using these skills in employment.

Applicants whose first language is not English must offer evidence of qualifications in written and spoken English. Acceptable qualifications are TOEFL 550 IELTS 6.0 or direct equivalents.

PROGRESSION ROUTES

Recognition arrangements provide formally approved entry or progression routes through which students are eligible to apply for a place on a programme leading to a BU award. Recognition guarantees entry onto the BU receiving programme but, in some cases,, additional entry criteria such as a Merit classification from the feeder programme may apply. Please see the Recognition Register (https://intranet.sp.bournemouth.ac.uk/pandptest/7J_Recognition_Register_Public.xlsx) for a full list of approved Recognition arrangements and agreed entry criteria.

In order to take advantage of exciting new approaches to learning and teaching as well as developments in industry, the current, approved Progression route(s) for this programme may be subject to change. Where this happens, students will be informed and supported by the Faculty as early as possible.

ASSESSMENT REGULATIONS

The regulations for this programme are the University's Standard Foundation Degree Assessment Regulations.

WORK BASED LEARNING (WBL) AND PLACEMENT ELEMENTS

An assessed Work Related Project unit is a core unit incorporated across the FdSc programmes and offers an opportunity for learners to obtain credit for and to reflect upon their learning either formally by production of a major project, or on a day-to-day basis in the workplace.

As the part time students are normally employed in the science industry, the Work Related Project offers informal opportunity for reflection on current practice which may be documented subsequently as part of the work related unit.

All students, both full-time and part-time, undertake an industry related major project. This can be carried out within a company or developed within the college environment. In both cases the projects involve direct contact with the customer. When a project is carried out at Wiltshire College, students will normally design and develop a project specified by a company.

For learners undertaking a Higher or Degree Apprenticeship, supporting evidence for NVQ 4 requirements can be taken from the Work Related Project report and the work based learning elements of the programme.

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Programme Skills Matrix

Units		Programme Intended Learning Outcomes																									
		A 1	A 2	A 3	A 4	A 5	A 6	B 1	B 2	B 3	B 4	B 5	B 6	C 1	C 2	C 3	C 4	C 5	C 6	C 7	D 1	D 2	D 3	D 4	D 5	D 6	D 7
LEVEL 5	Professional Development Portfolio	X	X		X				X	X	X	X		X	X	X		X	X			X	X	X	X		X
	Advanced Chemistry for Pharmaceuticals	X	X	X	X					X	X	X		X	X			X	X	X	X				X	X	
	Work Related Project	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Physiological Biochemistry	X	X		X	X		X	X			X	X	X		X		X							X	X	
	Pharmacodynamics and kinetics	X	X		X	X	X	X				X		X				X							X	X	
	Bioanalytical Techniques	X	X		X	X	X		X			X	X	X	X	X	X	X		X	X			X	X	X	X
LEVEL 4	Introduction to Pharmaceuticals and Science	X	X		X	X				X		X		X	X		X	X			X			X	X	X	
	Fundamental Chemistry	X	X	X	X		X			X		X		X	X	X	X	X		X	X			X	X	X	
	Essential Biology and Physiology	X	X		X		X			X		X		X	X	X	X	X		X	X			X	X	X	
	Mathematics for Science				X							X		X			X					X			X	X	
	Academic Writing Skills	X	X		X			X		X		X	X	X		X		X	X		X	X	X		X	X	
	Practical Laboratory Skills	X			X		X		X	X	X	X		X	X	X	X	X	X	X	X	X			X	X	X

A – Subject Knowledge and Understanding

This programme provides opportunities for students to develop and demonstrate knowledge and understanding of:

1. Understand the fundamental concepts, principles and theories of Chemistry and Biology and know the physical nature of pharmaceutical substances with respect to possible chirality and physical state under physiological conditions

C – Subject-specific/Practical Skills

This programme provides opportunities for students to:

1. Demonstrate confidence and competence in the use of information technologies, including working effectively in an online environment
2. Undertake competent, safe, evaluative, reflective and effective practice

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Programme Specification - Section 2

<ol style="list-style-type: none"> 2. Illustrate a comprehensive and detailed knowledge of Chemistry and Biology with areas of specialisation in depth 3. Understand and know methods for chemical synthesis of pharmaceutical substances, usually by organic chemistry reaction pathways and combinatorial chemistry 4. Demonstrate an ability to carry out scientific calculations to the required degree of accuracy and precision 5. Understand the physiological and biochemical signalling pathways and how pharmaceutical drugs may be utilised, including their mode of administration 6. Understand the theory and carry out practical aspects in Chemistry and Biology 	<ol style="list-style-type: none"> 3. Conduct research into scientific issues, either individually or as part of a team 4. Analyse experimental results and determine their strength and validity 5. Use appropriate skills to communicate effectively in scientific situations 6. Act autonomously, with minimal supervision or direction, within agreed guidelines 7. Prepare and present scientific reports
<p>B – Intellectual Skills This programme provides opportunities for students to:</p> <ol style="list-style-type: none"> 1. Explain what underpins the anatomical, physiological, cellular, biochemical, metabolic, immunological and molecular processes of life 2. Critically evaluate theory and practice 3. Be creative in the solution of problems and in the development of research activity 4. Analyse and synthesise information, identifying implicit values, detecting false logic or reasoning and ensuring that conclusions are supported by evidence 5. Integrate and evaluate information from a variety of sources in order to gain a coherent understanding of theory and practice 6. Interpret and evaluate experimental data to yield analytical information 	<p>D – Transferable Skills This programme provides opportunities for students to:</p> <ol style="list-style-type: none"> 1. Perform effectively when working in collaboration with others 2. Manage own roles, responsibilities and time; undertake personal and career development; utilise skills in new and changing situations and contexts 3. Deploy a range of interpersonal skills including effective listening, negotiating, persuasion and presentation 4. Relate to, and interact effectively with, individuals and groups, including working effectively as a team member 5. Communicate effectively using verbal and/or non-verbal means, including receiving, responding to, and presenting information in a variety of visual forms 6. Manage tasks and identify and solve problems using information sources and apply numerical skills and techniques 7. Be independent and reflective learners, analysing own strengths and weaknesses