UNIVERSITY OF LINCOLN

Programme Specification

Title:

Science Foundation Year

Upon successful completion of the foundation year, progression onto level 1 (4) of the relevant integrated masters / honours degree will have been achieved.

Exit Award:

Foundation Year Certificate

Table of Contents

1. Introduction

This document describes one of the University of Lincoln's programmes using the protocols required by the UK National Qualifications Framework as defined in the publication *QAA guidelines for preparing programme specifications*.

This programme operates under the policy and regulatory frameworks of the University of Lincoln.

2. Basic Programme Data

Final Award:	**Progression to BSc(Hons) / BEng / MChem / MMaths/ MPhys / MPharm**
Programme Title:	**Science Foundation Year**
Exit Awards / Final award will align to each programme's approved options e.g. CertHE, DipHE, Honours etc.	Chemistry with Science Foundation Year BSc Chemistry with Science Foundation Year MChem Chemistry with Drug Discovery and Development with Science Foundation Year BSc Chemistry with Drug Discovery and Development with Science Foundation Year MChem Chemistry with Education with Science Foundation Year BSc Chemistry with Education with Science Foundation Year MChem Chemistry with Mathematics with Science Foundation Year BSc Chemistry with Mathematics with Science Foundation Year MChem Forensic Chemistry with Science Foundation Year BSc Forensic Chemistry with Science Foundation Year MChem Forensic Science with Science Foundation Year BSc Automation Engineering with Science Foundation Year BEng Electrical Engineering (Control Systems) with Science Foundation Year BEng Electrical Engineering (Electronics) with Science Foundation Year BEng Electrical Engineering (Power and Energy) with Science Foundation Year BEng Mechanical Engineering with Science Foundation Year BEng Mechanical Engineering (Control Systems) with Science Foundation Year BEng Mechanical Engineering (Power and Energy) with Science Foundation Year BEng Animal Behaviour and Welfare with Science Foundation Year BSc Biochemistry with Science Foundation Year BSc Biology with Science Foundation Year BSc Biomedical Science with Science Foundation Year BSc Bioveterinary Science with Science Foundation Year BSc Ecology and Conservation with Science Foundation Year BSc Zoology with Science Foundation Year BSc Mathematics with Science Foundation Year BSc Mathematics with Science Foundation Year MMath Mathematics and Physics with Science Foundation Year BSc Mathematics and Physics with Science Foundation Year MMath Mathematics with Philosophy with Science Foundation Year BSc Mathematics with Computer Science with Science Foundation Year BSc Physics with Science Foundation Year BSc Physics with Science Foundation Year MPhys Physics with Philosophy with Science Foundation Year BSc Physics with Philosophy with Science Foundation Year MPhys Pharmaceutical Science with Science Foundation Year BSc Pharmacy with Science Foundation Year MPharm

Subject(s):	**Biology** **Chemistry** **Pharmacy** **Engineering** **Mathematics** **Physics**
Mode(s) of Delivery:	**Full time**
Is there a Placement or Exchange?	**No**
UCAS Code(s):	**F101; F103; F153; F154; F1X3; F1X4; F1G3; F1G4; F1F6; F1F7; F411; H662; H602; H603; H604; H302; H303; H304; D792; C702; C102; B942; D304; C302; G101; F301; B233; B232; C18A; GF14; GFC4; G103; F304; VG52; GG15; F3V6; VF54**
Awarding Body:	**University of Lincoln**
Campus(es):	**Lincoln Campus**
School(s):	**School of Chemistry** **School of Engineering** **School of Life Sciences** **School of Mathematics and Physics** **School of Pharmacy**
Programme Leader:	**Kerry Blagden**
Relevant Subject Benchmark Statements:	**None**
Professional, Statutory or Regulatory Body Accreditation:	**n/a**
Programme Start Date:	**2019-20**

3. Programme Description

3.1 Overview

The Science Foundation Year aims to prepare students for transition into degree-level study, by equipping them with the fundamental skills and knowledge needed to be successful in science, healthcare or engineering related subjects. The course is designed to open up an exciting world of opportunities within these disciplines for students who do not meet our standard entry requirements.

The Foundation Year provides an alternative integrated entry route onto a wide range of degree-level programmes in the College of Science in the schools of Chemistry, Engineering, Life Sciences, Mathematics and Physics and Pharmacy.

Curriculum content will be research-engaged but also delivered at a fundamental level to provide a solid foundation to degree-level study. The University's 'Student as Producer' ethos underpins the design of the Foundation Year and elements of independent study and reflection within modules will guide students on their learning journey.

3.2 Aims and Objectives

The overall aim of the Science Foundation Year is to provide students with appropriate knowledge and understanding in order to effectively prepare them for degree level study. The Foundation Year creates an alternative progression route onto named degree programmes across the College, allowing entry to students who do not hold the qualifications to satisfy the usual entry requirements. The Foundation Year will be an integrated part of existing named Honours and integrated Masters programmes within the College. Students will normally study for 4 years (BSc or BEng (Hons)) or 5 years (integrated Masters programmes). The Foundation Year will comprise a set of core modules which will help prepare students for degree level study in all subjects alongside optional modules which will be chosen by the school or student depending upon the usual entry requirements of the existing Honours or Masters programmes. For details see the appended document detailing the module structure and delivery pattern. Modular content has been designed to underpin level 1 (FHEQ level 4) requirements, by delivering key parts of relevant A level or equivalent syllabi. The programme has also been designed to include opportunities, via delivered and assessed modules, for students to interact with staff in their destination school.

3.3 Variations to Standard Regulations and Guidance

No variation to University regulations in operation.

Programme governed by University General Regulations and Undergraduate Regulations:

Link: http://secretariat.blogs.lincoln.ac.uk/university-regulations/

Specific Regulations covering the Foundation Year Certificate can be found in section H of the Undergraduate Regulations'

4. Programme Outcomes

Programme-level learning outcomes are identified below.

Refer to *Appendix I – Curriculum Map* for details of how outcomes are deployed across the programme.

4.1 Knowledge and Understanding

On successful competition of the Foundation Year a student will have knowledge and understanding of:

1. Basic mathematical and statistical techniques as relevant to their chosen degree programme.
2. Key scientific concepts required to underpin further study on their chosen degree programme.
3. Strategies and techniques to support continued undergraduate study.
4. A variety of IT as appropriate to their chosen subject.
5. How to search for and select relevant sources of information.
6. How to accurately cite and reference information sources.

4.2 Subject Specific Intellectual Skills

On successful completion of the Foundation Year a student will be able to:

7. Demonstrate knowledge and understanding of concepts and applications in subject areas relevant to their intended progression route.
8. Identify and evaluate information and apply to given problems.
9. Apply subject specific knowledge and theory to tackle simulated problems and case studies in areas of relevance to their chosen degree programme.
10. Analyse information from primary and secondary sources.

4.3 Subject Specific Practical Skills

On successful completion of the Foundation Year a student will be able to:

11. Carry out mathematical calculations at a level appropriate to their intended progression route.

12. Search, disseminate and acknowledge a variety of sources of information.

13. Work both independently and with others.

14. Revise effectively for examinations in preparation for further undergraduate study.

15. Carry out practical work accurately, precisely and in accordance with health and safety procedures.

16. Collect data from primary and secondary sources and use appropriate methods to manipulate and analyse this data.

17. Record and present data in appropriate formats.

4.4 Transferable Skills and Attributes

On successful completion of the Foundation Year a student will be able to:

18. Communicate scientific ideas clearly and unambiguously in written and spoken English.

19. Challenge and defend ideas effectively in written and spoken English.

20. Manage their time and study independently, setting realistic targets and accessing support where appropriate.

21. Use the library and other sources of information effectively.

22. Take responsibility for their learning journey, planning for and recording their personal development.

23. Reflect on their learning development, recognising their academic strengths and weaknesses.

24. Provide, accept and respond positively to constructive feedback.

25. Work effectively with others as part of a group or team.

26. Demonstrate awareness of professional development and employability skills.

For details of each module contributing to the programme, please consult the module specification document.

5. Learning, Teaching and Assessment Strategies

5.1. Learning and Teaching Strategy

The syllabus aims to provide a solid grounding in theoretical and practical aspects of Science that fully prepares students for degree-level study. In addition to providing A level equivalent content, the syllabus integrates the diverse research activities and interests of academic staff in the College of Science. The syllabus is designed to provide a solid knowledge and understanding of key scientific concepts alongside the transferable skills that are essential for successful degree-level study. The overarching strategy for learning and teaching at the University of Lincoln is that of Student as Producer where students are encouraged to see themselves as producers of knowledge and collaborators in their learning experience. The teaching ethos covers the eight principles of Student as Producer; Discovery, Technology in Teaching, Space and spatiality, Assessment and Feedback, Research and Evaluation, Student Voice, Support for research, and Creating the future. These principles are embedded into the teaching curriculum as indicated below.

Discovery: Student as Producer

Problem, enquiry and research–based learning

Throughout the Foundation Year, students will be asked to address scenarios relevant to science, using their developing research skills. Problem-solving and strategy development as individuals and in groups will contribute to assessment in a number of modules, producing a combination of outputs including presentations, written coursework and examinations. The Foundation Year academic team will provide guidance and support on the expected styles of response and additional support is available in the library and maths/stats support centre. One assessment style will be reflective journals which will encourage students to consider aspects of their learning that are going well and those that could be improved.

Technology in Teaching: Digital Scholarship

Staff will use the virtual learning environment (Blackboard) to provide access to lecture notes, discussion boards, weblinks, video clips, reading lists and indicative electronic resources which will enhance the students' experience. Whilst it is difficult to provide some electronic resources, such as apps, uniformly across all technological platforms, (e.g. iOS vs Android) where possible this will be used to supplement other materials, whilst not relying on any of these technology specific resources for any component of assessment. As part of the delivered content, particularly within the Study Skills module, students will be encouraged to become digitally literate as they develop as undergraduate students. Most staff utilise Blackboard for electronic submission of work. Coursework submitted electronically will be submitted via Turnitin to check for plagiarism and collusion.

Space and spatiality: Learning Landscapes in HE

Laboratory space is critical to the teaching of laboratory based science disciplines and students will be taught in spaces relevant to their modules, including laboratories and / or workshops in the Science Building and / or the Isaac Newton Building.

Student Voice: Diversity and Difference

The students will have a number of mechanisms by which they can make their views heard, firstly by direct contact with the Foundation Year academic staff and Head of Foundation Year studies. Direct feedback to module delivery staff and course co-ordinators will be facilitated by questionnaires and feedback surveys at relevant stages of the programme throughout the year. Diversity of the student population will be encouraged in respect to gender and ethnicity. Students will be encouraged to interact not only with their immediate contacts within the Foundation Year but also with the School in

which their degree programme sits and the University as a whole to give them a broader perspective on other points of view and a greater say in their education. This will include representation on student committees.

Support for research-based teaching and learning through expert engagement with information resources.

All students have a library induction during induction week. Their subject librarians have access to several of the blackboard sites to facilitate communication with students. Library workshops and updates are posted on these sites and students are encouraged by staff to engage with workshops in the library. Some lecturing staff will also provide subject specific information resources.

Creating the future: employability, enterprise, postgraduate, beyond employability

The Foundation Year is primarily aimed at students who wish to embark on degree-level scientific study but don't have the necessary entry requirements for direct entry onto level 1 (FHEQ level 4). Whilst the Foundation Year's primary focus is to supporting students on their journey towards graduate-level study, transferable skills have been included that would be applicable to any future career.

Students will be assigned a Transition Tutor (Personal Tutor) from within the Foundation Year academic team who is available to provide academic guidance, pastoral care, and support to the students during Foundation Year. Tutorial meetings will be formally timetabled within the Foundation Year. The students will also be assigned a Link Tutor from their destination school to enhance interaction and connection with their destination school.

5.2 Assessment Strategy

Assessment throughout the programme will be via a series of coursework exercises and examinations which will vary considerably in the style of exercise in order to develop and test a broad range of skills embedded within through the curriculum. These exercises will typically include laboratory exercises and reports, problem based learning exercises, presentations, essays and reflective journals. Elements of some of these assessments will be both individual and group-based whilst others will be solely based on individual work. Some modules will also assess the core essential knowledge and understanding through examinations which may also challenge students to demonstrate analytical skills. By utilising significant coursework assessments, there is an increased advantage for the student to convey their understanding of the programme as a whole and to display evidence of their developing knowledge and understanding. Examinations will also be included to ensure students are sufficiently challenged and fully prepared for degree-level study. The aim is for guideline marking criteria to be provided to the students for examinations and each piece of coursework set. Where possible, these marking criteria will be maintained across modules such that similar coursework activities follow comparable marking criteria. Assessments will have formative elements as well as summative elements and feedback will be provided in a timely manner in order that the students can respond to constructive feedback and apply that feedback to their future assessments. Assessment criteria, deadlines and any other exercise-specific details will be made clear to the students at the beginning of each module.

Assessments facilitate:

- A means of judging student performance in achieving the learning outcomes of each module.
- Feedback to the student on performance which identifies ways they can improve.

The assessment of each module is monitored by the Foundation Year team to ensure the following:

1. Appropriate and consistent performance criteria supported by marking schemes.
2. Reasonable time required for the assessment task.
3. Reliable and valid assessment through internal moderation.

6. Programme Structure

See programme delivery pattern and notes document.

Title	Credit Rating	Core / Optional
Mathematics for Engineers and Scientists	30	Core
Study Skills	15	Core
Fundamentals of Chemistry	30	Optional
Fundamentals of Biology	30	Optional
Fundamentals of Physics	30	Optional
Mathematical Methods	30	Optional
Foundation Year Chemistry	15	Optional
Foundation Year Life Sciences	15	Optional
Foundation Year Pharmacy	15	Optional
Foundation Year Engineering	15	Optional
Foundation Year Mathematics and Physics	15	Optional

Appendix I - Curriculum Map

This table indicates which modules assume responsibility for delivering and ordering particular programme learning outcomes.

Key:	☑	Delivered and Assessed		Delivered	☑	Assessed

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15	PO16	PO17	PO18	PO19	PO20	PO21	PO22	PO23	PO24	PO25	PO26
Mathematics for Engineers and Scientists	☑							☑	☑		☑		☑	☑		☑					☑					
Study Skills			☑		☑	☑		☑					☑			☑		☑		☑		☑	☑		☑	
Fundamentals of Chemistry		☑			☑	☑	☑				☑		☑	☑	☑	☑	☑	☑	☑	☑	☑					
Fundamentals of Biology		☑			☑	☑	☑				☑		☑	☑	☑	☑	☑	☑	☑	☑	☑					
Fundamentals of Physics		☑			☑	☑	☑				☑		☑	☑	☑	☑	☑	☑	☑	☑	☑					
Mathematical Methods	☑	☑			☑	☑	☑				☑		☑	☑	☑	☑	☑	☑	☑	☑	☑					
Foundation Year Chemistry			☑	☑		☑		☑		☑		☑	☑							☑	☑	☑	☑	☑	☑	☑
Foundation Year Life Sciences			☑	☑		☑		☑		☑		☑	☑							☑	☑	☑	☑	☑		☑
Foundation Year Pharmacy			☑	☑		☑		☑		☑		☑	☑							☑	☑	☑	☑	☑	☑	☑
Foundation Year Engineering			☑	☑		☑		☑		☑		☑	☑							☑	☑	☑	☑	☑		☑
Foundation Year Mathematics and Physics			☑	☑		☑		☑		☑		☑	☑							☑	☑	☑	☑	☑		☑

Appendix II - Assessment Map

This table indicates the spread of assessment activity across the programme. Percentages indicate assessment weighting.

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	EP1	EP2
Mathematics for Engineers and Scientists																																50		50
Study Skills				30						35		35																						
Fundamentals of Chemistry																							50										50
Fundamentals of Biology																						50											50
Fundamentals of Physics																								50									50
Mathematical Methods																															50			50
Foundation Year Chemistry																									30							70		
Foundation Year Life Sciences																										75					25			
Foundation Year Pharmacy																									30							70		
Foundation Year Engineering																																100		
Foundation Year Mathematics and Physics																																100		

The assessment map will change from year to year, particularly in semester B due to the changing position of the Easter vacation.

Appendix III - Benchmark Analysis

This table maps programme learning outcomes to relevant QAA subject benchmark statements or PSRB guidelines.

n/a

1. Basic Module Data

Module Title:	**Mathematics for Engineers and Scientists**
School:	**School of Chemistry, School of Engineering, School of Life Sciences, School of Mathematics and Physics, School of Pharmacy**
Module Code:	**MTH0002M**
Credit Rating:	**30**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Thomas Hobson**

2. Module Synopsis

The module aims to enable students to gain an understanding of the main mathematical concepts needed to prepare them for their chosen degree programme within an academically challenging yet supportive environment. The module aims to provide learning opportunities in key mathematical areas in preparation for BSc level study. It also aims to develop student understanding of the main concepts in mathematics, their application in various situations as well as support the enhancement of problem-solving skills. The module also aims to support students as their confidence as reflective learners develops.

3. Outline Syllabus

Lecture content will typically include:

- Basic algebra
- Vectors
- Logarithms
- Probability
- Statistics

4. Module Learning Outcomes

LO1: Operate with main mathematics concepts.
LO2: Apply basic mathematics to analyse and interpret data.
LO3: Apply a variety of mathematical principles to real world scientific problems.
LO4: Use introductory statistics to analyse the reliability of data.

5. Learning and Teaching Strategy/Methods

The module syllabus will be delivered via a programme of lectures, supported by opportunities for student-centred learning. The lectures will introduce core concepts and consider key issues in mathematics and will also provide opportunities to work independently or collaboratively on mathematical questions, with students being directed towards recommended reading material and on-line resources. Students will be encouraged to attempt relevant problems in advance of sessions and to be prepared to ask questions relating to the material. Student-centred learning will focus on problem-solving exercises, the completion of coursework, revision and exam preparation.

6. Assessment

The module will be assessed via written exam and portfolio. The portfolio component will consist of regular assessments throughout the module on elements associated with problem-solving tasks.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Exam	50	LO1,LO2,LO3	EP2	No
Portfolio	50	LO1,LO2,LO3,LO4	32	No

7. Professional, Statutory and Regulatory Body Requirements

None

8. Indicative Reading

Foundation Maths: by A Croft, R Davison (Pearson 26 February 2016), ISBN-13: 978-1292095172

A First Course in Statistics: by J McClave & T Sincich (Pearson 2018) ISBN-13: 978-1292165417

Maths for Science: by S Jordan, S Ross & P Murphy (Oxford University Press 2013) ISBN-13: 978-0199644964

College Algebra: by J Stewart, L Redlin & S Watson (Cengage Learning; 7th edition, 2016), ISBN-13: 978-1305115545

Basic College Mathematics with POWER Learning: by S Messersmith, L Perez & R Feldman (McGraw-Hill 2014), ISBN-13: 978-0073406244

Head Start to A-Level Maths (2017), CGP books, ISBN 978-1782947929

Rowland, M., Bridging GCSE and A level Maths Student Book (2011), Collins, ISBN 978-0007410231

Neill, H., Starting Advanced Mathematics: The Essential Foundation (2002), Cambridge University Press, ISBN 978-0521893565

Mathematics - The Core Course for A Level: by L Bostock & S Chandler (Stanley Thornes; 2 edition 1 Oct. 1981), ISBN-13: 978-0859503068

Pure Mathematics Vol. 1: by L Bostock, F S Chandler (Nelson Thornes; Revised ed. edition 7 July 1978), ISBN-13: 978-0859500920

1. Basic Module Data

Module Title:	**Study Skills**
School:	**School of Chemistry, School of Engineering, School of Life Sciences, School of Mathematics and Physics, School of Pharmacy**
Module Code:	**CHM0003M**
Credit Rating:	**15**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Kerry Blagden**

1. Module Synopsis

This module aims to induct and orientate students into the learning environment of higher education, equipping them with the generic skills required to support their studies at University and beyond. The module will develop students' study skills and introduce them to the underpinning concepts of scientific study and research methods. This module will enable students to benefit more fully from the higher education learning environment and develop their reflective practice, along with an understanding of the philosophy of science as related to scientific study.

Transferable skills aligned to academic writing, referencing and presentation are developed alongside research design and methods in a manner which enables students to engage across the breadth of their curriculum.

During the communication elements of the module, students will have opportunities to develop their learning, studying and presentation skills, together with both written and verbal communication skills and their ICT skills, including Microsoft Word. These are essential for personal development of the individual and for effective progression to BSc level study. In addition to the summative assignments and as part of their development as undergraduates, students will be given formative opportunities to develop a successful approach to assessments including examinations.

2. Outline Syllabus

The syllabus for this module is likely to include the following topics:

a. Independent Study Skills, including time management and reflective skills and practice
b. Research Design
c. Data collection and analysis
d. Scientific writing, referencing
e. Team working, delegation, resource management and group work
f. Journals and information literacy
g. Academic writing skills
h. Presentation skills
i. Qualitative research methods

4. Module Learning Outcomes

LO1: Identify situations in which they learn and study most or least effectively and produce an action plan to improve their performance.
LO2:Plan, manage and execute a range of research based learning tasks.
LO3: Demonstrate academic writing skills in the context of analysis, evaluation and reflection.
LO4: Plan, prepare and deliver an effective presentation.
LO5: Plan, organise and write effective reports/essays.

LO6: Work in groups or teams effectively.
LO7: Cite and reference sources accurately.

5. Learning and Teaching Strategy/Methods

Teaching and learning methods, underpinned by the Student as Producer ethos, will include some conventional lectures which cover the core subject matter, supported by workshops (tutorials or seminars) which allow students to develop, analyse and present their own findings. There will be an emphasis on formative learning by individual students working independently and in groups to research key topics in the curriculum. Group discussions will allow students to demonstrate their study skills as they develop.

6. Assessment

A range of coursework opportunities will assess student progress and achievement on this module. It is envisaged that the journal will comprise a 1000 word reflective learning journal (or blog) which will document the student journey as they commence their studies in HE. The presentation will be a group presentation and the essay, a 750 word essay or report on a topic chosen to align with their other modules running in semester A. The aim is for guidance and peer led constructive criticism to be provided by an earlier formative submission of the essay.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Journal	**35**	**LO1; LO2; LO3**	**12**	**No**
Presentation	**30**	**LO2; LO4; LO6**	**4**	**Yes**
Essay	**35**	**LO2; LO3; LO5; LO7**	**10**	**No**

7. Professional, Statutory and Regulatory Body Requirements

None

8. Indicative Reading

- Boyle, A and Ramsay, S. (2017) *Writing for Science Students*. London: Palgrave
- Bushman, B.A. (2008) How to Get Answers to Our Questions: Finding and Understanding Scientific Literature, International Journal of Aquatic Research & Education, 2(4), 367-371.
- Cottrell, S. (2013) The study skills handbook, Palgrave Macmillan
- Dean, J., Jones, A.M., Holmes, D., Reed, R., Jones, A. and Weyers, J. (2011) Practical Skills in Chemistry, Pearson.
- Jones, A., Reed, R. and Weyers, J. (2016) Practical Skills in Biology, Pearson.
- McMillan, K. and Weyers, J. (2012) How to Improve Your Critical Thinking & Reflective Skills (Smarter Study Skills), Pearson.
- Weyers, J. and McMillan, K. (2011) How to Write Essays & Assignments (Smarter Study Skills), Pearson.

1. Basic Module Data

Module Title:	**Fundamentals of Biology**
School:	**School of Chemistry, School of Life Sciences, School of Pharmacy**
Module Code:	**BGY0002M**
Credit Rating:	**30**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Ellie Davison**

2. Module Synopsis

The Fundamentals of Biology module aims to enable students to gain a solid understanding of aspects of the subject needed to prepare them for their chosen degree programme within an academically challenging yet supportive environment. The module aims to provide learning opportunities in key biological principles in preparation for BSc level study. The module also aims to develop students' confidence as knowledgeable, questioning scientists and reflective learners. This broad-based module may include aspects of ecology, biochemistry, molecular biology, animal science, forensic and biomedical sciences.

3. Outline Syllabus

This module aims to introduce fundamental concepts essential for a solid understanding of a range of topics relating to biology and associated subject areas. Lecture content will typically include:

a. Cell biology
b. Genetics
c. Evolutionary principles
d. Ecology
e. The diversity of life
f. Structure and function of plants
g. Structure and function of animals
h. The role of chemistry in biology

4. Module Learning Outcomes

LO1: Gain knowledge and understanding of a broad selection of biological processes of relevance to Animal Behaviour and Welfare, Biochemistry, Biology, Biomedical Science, Bioveterinary Science, Ecology and Conservation and Zoology.
LO2: Develop, from a biological perspective, an understanding of the reasons for the diversity of life on Earth.
LO3: Understand how the structure of animals and plants relates to their function.
LO4: Gain knowledge and understanding of a number of systems in plants and animals.
LO5: Describe and apply scientific concepts.

5. Learning and Teaching Strategy/Methods

Teaching and learning methods, underpinned by the Student as Producer ethos, will include some conventional lectures and practical classes, which cover the core subject matter and technical skills, supported by seminars which allow students to consolidate, develop and analyse the subject material. There will be an emphasis on formative learning, by individual students working independently and in groups to research key topics in the curriculum. Practical classes in laboratory and field allow students to practise project management and data gathering, handling and interpretation skills.

6. Assessment

Students will be assessed via coursework linked to the timetabled practicals and lectures, and a written examination at the end of the module.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Exam	50	LO3; LO4; LO5	EP2	No
Coursework	50	LO1; LO2; LO5	22	No

7. Professional, Statutory and Regulatory Body Requirements

None

8. Indicative Reading

Urry, L.A., Cain, M.L., Wasserman, S.A., Minorsky, P.V. and Reece, J.B. (2017) *Campbell Biology in Focus*. 2nd Edition. Harlow: Pearson Education Limited. (eBook available)

Williams, G. (2015) *Advanced Biology For You*, 2nd edition. Oxford: Oxford University Press. (eBook available)

Essential Maths Skills for A-Level Biology (2015) Broughton-In-Furness: Coordination Group Publications Ltd. (CGP).

Penny, J. (2013) *Maths skills for A level Biology.* Oxford: Oxford University Press.

Head Start to A-Level Biology (2015) Broughton-In-Furness: Coordination Group Publications Ltd. (CGP).

1. Basic Module Data

Module Title:	**Fundamentals of Chemistry**
School:	**School of Chemistry, School of Engineering, School of Life Sciences, School of Pharmacy**
Module Code:	**CHM0002M**
Credit Rating:	**30**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Emma Stones**

Module Synopsis

The Fundamentals of Chemistry module aims to introduce models describing bond formation between atoms and relate these to the physical chemical properties of simple molecules. The module also aims to provide learning opportunities to introduce the fundamental skills required for laboratory based work and develop skills in the safe handling of chemicals, in making accurate qualitative observations, quantitatively analysing compounds prepared in the laboratory, reporting and interpreting experimental results.

• Outline Syllabus

The syllabus will be designed to prepare students for BSc level study in chemistry and related subjects. The precise syllabus may vary from year to year, taking into account the needs of the students, but likely content will include the following: Atomic structure: nuclear and electronic (up to s, p, d orbitals). Chemical equations. Mole concept, relative atomic/molar masses, molar volume, reacting masses, molar conc. Intramolecular bonding: ionic, covalent, dative, electronegativity, polarity. Intermolecular bonding: hydrogen, Van der Waals bonding. Principles of organic nomenclature. Isomerism: structural, geometric and optical. Nature of organic chemistry: alkanes, alkenes, arenes. Organic functional groups (halogen, alcohol, aldehyde, ketone, carboxylic acid, ester and amine). Principles of organic reaction mechanisms. Simple reactions of alkenes, alcohols, carboxylic acids and amines. Enthalpy and entropy changes. Hess' Law. Rate equations. Catalysts including enzymes. Activation energy. Equilibrium, equilibrium constant (Kc), Le Chatelier's Principle. Effect of concentration, pressure and temperature. Strong and weak acids and bases. Acid ionisation constant of weak acids. Buffer solutions. Calculation of pH.

• Module Learning Outcomes

LO1: Describe the key features of the structure of atoms, chemical bonding, molecular structure, and organic reactions.
LO2: Explain the factors affecting the energy changes, rate and equilibrium position of a reaction.
LO3: Apply principles of chemistry to solve numerical problems involving chemical quantities, thermochemistry, reaction kinetics, equilibria, and acid-base chemistry.
LO4: Describe and apply scientific concepts.

• Learning and Teaching Strategy/Methods

Information outlining the knowledge and understanding required for this module will be delivered in lectures and seminars. Problem-solving workshops and seminars will be used to allow students to practise and reinforce the taught components. Feedback during workshops and in formative assessment aims to enable students to monitor their progress. The knowledge base, problem solving and numeracy skills of students will be assessed by examinations at the end of the module.
Laboratory-based work aims to include staff-led demonstration of practical skills at the bench and supervision of students' experimental work. Pre-laboratory workshops aim to provide students opportunities to familiarize students with the concepts and procedures. Teaching of health and safety and laboratory skills will be delivered in workshops. The aim is for laboratory skills to be taught and practised in laboratory sessions.

• Assessment

Students will be assessed via coursework which is linked to their practical sessions and lectures and an examination at the end of the module.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Exam	50%	LO1; LO2; LO3; LO4	EP2	No
Coursework	50%	LO3; LO4	23	No

• Professional, Statutory and Regulatory Body Requirements

None

• Indicative Reading

- Ryan, L., *Advanced Chemistry for You* (2015) Oxford, ISBN, 978-1408527368
- Zumdahl, S. S., and DeCoste, D. J. (2015) *Introductory Chemistry; a Foundation,* Cengage.
- Brown, T.L. (2014) *Chemistry; the central science*, Pearson.
- Dean, J., Jones, A.M., Holmes, D., Reed, R., Jones, A. and Weyers, J. (2011) *Practical Skills in Chemistry*, Pearson.
- Housecroft, C. E. and Constable, E. C. (2010*) Chemistry; an introduction to organic, inorganic and physical chemistry*, Pearson.
- Lewis, R. and Evans, W. (2006) *Chemistry*, Macmillan.
- *New Head Start to A – level Chemistry* (2015), CGP books, ISBN 978-1782942801
- *New A – level Chemistry: Essential Maths Skills* (2015), CGP books, ISBN 978-1782944720
- McGowan, D., and Poole, E., *Maths skills for A Level Chemistry* (2013) Nelson Thornes, ISBN 978- 1408521199
- Clark, J., *Calculations in AS / A level Chemistry* (2000), Longman, ISBN 978-0582411272
- Ramsden, E., *Calculations for A level Chemistry*, (2001), Nelson Thornes, ISBN 978-0748758395

1. Basic Module Data

Module Title:	**Fundamentals of Physics**
School:	**School of Chemistry, School of Engineering, School of Mathematics and Physics**
Module Code:	**PHY0001M**
Credit Rating:	**30**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Jayne Simmons**

2. Module Synopsis

The module aims to enable students to gain an understanding of the main concepts of modern physics that will prepare them for their chosen degree programme within an academically challenging yet supportive environment. The module aims to provide learning opportunities in key areas of physics in preparation for BSc level study. It aims to support students to develop their understanding of the main laws of physics, their manifestation in physics experiments as well as enhance problem solving skills. The module also aims to support students as their confidence as reflective learners develops.

3. Outline Syllabus

Lecture content will typically include:

- Optics
- Electricity
- Forces and Motion
- Elements of Thermodynamics
- Magnetism
- Introduction to Quantum Physics

4. Module Learning Outcomes

LO1: Mathematically solve simple introductory problems in physics.

LO2: Formulate main laws of physics at introductory level.
LO3: Apply physics laws to describe simple physics experiments and observations.

5. Learning and Teaching Strategy/Methods

The module syllabus will be delivered via a programme of lectures and seminars, supported by opportunities for student-centred learning. The lectures will introduce core concepts and consider key issues in physics and will also provide opportunities to direct students towards recommended reading material and on-line resources. In seminars students are encouraged to attempt relevant problems in advance of the session and to be prepared to ask questions relating to the material. Some of the seminars may be conducted in a physics laboratory where appropriate. Student-centred learning will focus on problem-solving exercises, the completion of coursework, revision and exam preparation.

6. Assessment

Students will be assessed via coursework linked to the timetabled practicals and lectures, and a written examination at the end of the module.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Exam	50	LO1,LO2,LO3	EP2	No
Coursework	50	LO1,LO2,LO3	24	No

7. Professional, Statutory and Regulatory Body Requirements

None

8. Indicative Reading

Johnson, K., *Advanced Physics for You* (2015) Oxford ISBN, 978-1408527375 – Core Text

A Level Physics by Roger Muncaster (Nelson Thornes; 4th Revised & enlarged edition, 1 Aug. 1993), ISBN-13: 978-0748715848

Tear, C., *Maths skills for A level Physics*, (2013) Oxford, ISBN 978-1408521205

New A – level Physics: Essential Maths Skills (2015), CGP books, ISBN 978-1782944713 *New Head Start to A – level Physics* (2015), CGP books, ISBN 978-1782942818

Lowe, T. And Rounce, J.F., *Calculations for A level Physics Fourth edition* (2002), Nelson Thornes, ISBN 978- 0748767489

1. Basic Module Data

Module Title:	**Mathematical Methods**
School:	**School of Engineering, School of Mathematics and Physics**
Module Code:	**MTH0003M**
Credit Rating:	**30**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Dave Spafford**

2. Module Synopsis

This module, running alongside Mathematics for Engineers and Scientists, enables students to gain an understanding of the main mathematical concepts that will prepare them for their chosen degree programmeThe module provides learning opportunities in key areas of mathematics, preparing students for BSc level study within an academically challenging yet supportive environment.. The aim is to support students as they develop a solid understanding of the main mathematical methods and their applications, as well as to enhance problem solving skills. The module supports students as their confidence as reflective learners develops.

3. Outline Syllabus

Lecture content will typically include:

- Derivatives
- Integrals
- Functions
- Fundamentals of linear algebra
- Progressions and series
- Trigonometry
- Applied mathematics

4. Module Learning Outcomes

LO1: Operate with main mathematical concepts and basic methods.
LO2: Apply basic mathematical methods to analyse and interpret data.
LO3: Apply a variety of mathematical methods to a set of problems.

5. Learning and Teaching Strategy/Methods

The module syllabus will be delivered via a programme of lectures and seminars, supported by opportunities for student-centred learning. The lectures will introduce core concepts and consider key issues in mathematics and will also provide opportunities to direct students towards recommended reading material and on-line resources. Seminars will be based around problems presented for consideration and students will be encouraged to attempt relevant problems in advance of sessions and to be prepared to ask questions relating to the material. Student-centred learning will focus on problem-solving exercises, the completion of coursework, revision and exam preparation.

6. Assessment

The module will be assessed via coursework and written exam. The coursework component will consist of regular assessments throughout the module on elements associated with mathematical problem-solving tasks.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Exam	50	LO1,LO2,LO3	EP2	No
Coursework	50	LO1,LO2,LO3	31	No

7. Professional, Statutory and Regulatory Body Requirements

None

8. Indicative Reading

Foundation Maths: by A Croft, R Davison (Pearson 26 February, 2016) ISBN-13: 978-1292095172

Calculus: by W Briggs, L Cochran & B Gillett (Pearson, 2015), ISBN-13: 978-1292062327

College Algebra: by J Stewart, L Redlin & S Watson (Cengage 2016), ISBN-13: 978-1305115545

Introducing Pure Mathematics: by R Smedley & G Wiseman (Oxford University Press, 2nd Edition 2001), ISBN-13: 978-019914803

Further Pure Mathematics: by B Gaulter & M Gaulter (Oxford University Press, 2001), ISBN-13: 978-0199147359

A First Course in Statistics: by J McClave & T Sincich (Pearson, 2018), ISBN-13: 978-1292165417

Mathematics - The Core Course for A Level: by L Bostock, F S Chandler (Oxford University Press, 2014), ISBN-13: 978-0859503068

Applied Mathematics, Vol. 1: by L Bostock, F S Chandler (Stanley Thornes 1 Sept. 1975), ISBN-13: 978- 0859500197

Pure Mathematics Vol. 1: by L Bostock, F S Chandler (Nelson Thornes; Revised ed. edition 7 July 1978), ISBN-13: 978-0859500920

Mathematics - Mechanics and Probability: by L Bostock & S Chandler (Oxford University Press, 2014), ISBN-13: 978-0859501415

Further Pure Mathematics: by L Bostock & S Chandler (Oxford University Press, 2014), ISBN-13: 978-0859501033

Invitation to Linear Algebra: by D Mello (Taylor & Francis, 2017), ISBN-13: 978-1498779562

Foundation Mathematics: by L Mustoe & M Barry (J Wiley & Sons, 1998), ISBN-13: 978-0471970927

1. Basic Module Data

Module Title:	**Foundation Year Chemistry**
School:	**School of Chemistry**
Module Code:	**CHM0001M**
Credit Rating:	**15**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Hilary Hamnett**

2. Module Synopsis

This module aims to enable students to gain a deeper understanding of their chosen degree and career path, as well as supporting them in their personal development as reflective learners and scientists. Students will reflect on professional practice skills relevant to their chosen degree programme and will have opportunities to extend their skills in chemistry and data handling. Typically, these will include a series of worksheets in areas of their chosen specialism to allow students to expand their numerical and chemistry skills.

3. Outline Syllabus

- Planning, carrying out and writing up a research project (class experiment)
- Data handling
- Analytical chemistry
- Personal traits and skills development

4. Module Learning Outcomes

By the end of this module students will have had opportunities to:

LO1: demonstrate key professional practice elements of their chosen career path.
LO2: demonstrate team-working, presentation, and written and oral communication skills.
LO3: demonstrate engagement with reflective learning and personal development.

5. Learning and Teaching Strategy/Methods

Module content will be delivered by lectures and group seminars, as well as a laboratory session. Students will be encouraged to learn by enquiry and reflection and will be guided in their personal and professional development by tutors from the School of Chemistry. Where appropriate, content will be shaped towards students' chosen degree and career path. The format will enable formative feedback and support opportunities for students as they develop the assessment components throughout the module.

6. Assessment

This module is assessed by coursework.

Assessment Method	Weighting (%)	Learning Outcomes Tested	Submission Week	Group Work?
Presentation – problem-based learning	30	1 2 3	25	Yes
Written assignment equivalent to 1,000 words	70	1 2 3	32	No

7. Professional, Statutory and Regulatory Body Requirements

There are no specific requirements for students

8. Indicative Reading

http://www.rsc.org/learn-chemistry/resource/listing?searchtext=%22CandPBL%22

1. Basic Module Data

Module Title:	**Foundation Year Engineering**
School:	**School of Engineering**
Module Code:	**EGR0001M**
Credit Rating:	**15**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Nicholas Tucker**

2. Module Synopsis

This module will provide an opportunity for students to gain an understanding of their chosen degree and career path, as well as supporting them in their personal development as reflective learners and engineers.

Shaped around a series of practical activities, students will have opportunities to explore current and future developments in engineering and the engineering industry. At the same time they can reflect on their personal skills and traits relevant to their chosen careers. Practical activities will be aligned to various engineering disciplines, such as automation, electrical and electronics, control, and mechanical engineering, in order to provide an insight into the diverse range of opportunities within the profession and to enable students to make an informed choice on study pathways. Students will work directly with school academic staff during practical activities and the aim is to develop a portfolio of lab reports which will be assessed at the end of the module. The hard and soft skills developed through completion of this module should provide a strong foundation for later study

3. Outline Syllabus

- Current and future developments in Engineering.
- Industrial applications of Engineering.
- Personal traits and skills development - including Attitudes, Knowledge and Skills relevant to chosen careers.

4. Module Learning Outcomes

By the end of this module students will have opportunities to:

LO1: participate in the planning and safe execution of practical activities in a range of engineering subject areas.
LO2: demonstrate an understanding of a range of engineering disciplines.
LO3: demonstrate team-working, presentation, and written and oral communication skills.
LO4: manage their time effectively and work independently.

5. Learning and Teaching Strategy/Methods

Module content will be delivered through practical activities. Students will be encouraged to learn by enquiry and reflection, and will be guided in their personal and professional development by tutors from the School of Engineering.

6. Assessment

This module is assessed by coursework.

Assessment Method	Weighting (%)	Learning Outcomes Tested	Submission Week	Group Work?
Coursework	100	1 2 3 4	32	No

7. Professional, Statutory and Regulatory Body Requirements

There are no specific requirements for students

8. Indicative Reading

Students will be encouraged to read articles relating to current developments in engineering, and will be guided to pertinent sources by tutors.

1. Basic Module Data

Module Title:	**Foundation Year Life Sciences**
School:	**School of Life Sciences**
Module Code:	**BGY0001M**
Credit Rating:	**15**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Karen Staines**

2. Module Synopsis

The integrative Foundation Year Life Sciences module aims to enable students to gain a deeper understanding of their chosen degree programme and career path, building on their learning in the Fundamentals of Biology and Fundamentals of Chemistry modules by beginning to apply their knowledge to cutting edge research in life sciences. The module will also support them as their confidence as scientists and reflective learners develops.

3. Outline Syllabus

This module aims to enable students to increase their depth and breadth of understanding of the latest research topics and methodologies from across life sciences.

This module gives students the opportunity to learn skills that will empower them to interpret and scrutinise scientific research, through the critical evaluation of published papers, attendance at seminars and practicals.

Topics aim to build on the Fundamentals of Biology module with a focus on areas of interest spanning all programs in the School of Life Sciences. Typically, these topics will be in the areas of molecular biology, immunology and health and disease.

4. Module Learning Outcomes

By the end of this module students will be given opportunities to:

LO1: demonstrate knowledge and understanding of contemporary research topics and methodologies from across the breadth of the life sciences,

LO2: understand the nature and importance of interdisciplinarity in life science,

LO3: consider the reliability of scientific data,

LO4: understand the diverse topics studied across the breadth of life science,

LO5: develop a critical approach to reviewing scientific literature,

LO6: apply scientific theory to explaining new ideas in life sciences.

5. Learning and Teaching Strategy/Methods

The module syllabus will be covered through a programme of lectures, research seminars and practical sessions. In line with the principles of Student as Producer, the emphasis will be on formative learning by individual students working independently and in groups as they develop their knowledge and understanding of key topics in life sciences.

6. Assessment

Students will complete two pieces of coursework as assessments for this module: a literature review and a Powerpoint assisted presentation.

Students will be required to produce a review, with a limit of 1,500 words, relevant to their chosen degree programme. This will test their ability to search relevant primary literature, interpret and critique this research and write a concise, well-structured scientific review. Guidance and constructive criticism will be provided through an earlier formative submission.

Individual presentations will build on the skills developed through the group excercises delivered as part of the earlier Study Skills module. Students will be encouraged to choose a topical area of interest relevant to their chosen degree program.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Literature review (1,500 words)	75	LO1; LO2; LO3; LO4; LO5; LO6	26	N
Presentation	25	LO1; LO2; LO3; LO4; LO5; LO6	31	N

7. Professional, Statutory and Regulatory Body Requirements

None

8. Indicative Reading

Ruxton, G. D. and Colegrave, N. (2011) *Experimental design for the life sciences.* Oxford and New York: Oxford University Press.

Yudkin, B. (2006) *Critical reading: making sense of research papers in life sciences and medicine.* Routledge.

Machi, L. A. and McEvoy, B.T. (2016) *The literature review: six steps to success,* 3rd edition. Thousand Oaks, California: Corwin.

Ridley, D. (2012) *The literature review a step-by-step guide for students*, 2nd edition. London: Sage.

Current articles in accessible journals relevant to the breadth of Life Sciences e.g. New Scientist, The Biologist, Nature, Animal Behaviour, Veterinary Record, Plos One.

1. Basic Module Data

Module Title:	**Foundation Year Mathematics and Physics**
School:	**School of Mathematics and Physics**
Module Code:	**MTH0001M**
Credit Rating:	**15**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Manuela Mura**

2. Module Synopsis

The module aims to provide an opportunity for students to advance their understanding of the main mathematical and physical methods needed to prepare them for their chosen degree programme within an academically challenging yet supportive environment. The module aims to provide learning opportunities in a set of key areas of mathematics and physics in preparation for BSc level study. Additionally, it will develop computer skills applied to mathematics and physics questions and enhance problem solving skills. The module will also support students as their confidence as reflective learners develops.

3. Outline Syllabus

The lectures and computer classes aim to address a selected set of mathematics and physics problems by means of specialised computer software. The student will learn how to use the specialised software to intuitively construct calculations using standard math notation, to produce quality documents supported by mathematics, plots, text and images. The covered topics may include:

Functions, 2D and 3D plots, Units, Systems of equations, Symbolic manipulations, Vectors, Curve fitting, Finding roots

4. Module Learning Outcomes

LO1: Basic operation of a modern computer software for mathematics and physics calculations

LO2: Apply the computer software to simple mathematics problems
LO3: Apply the computer software to simple physics problems

5. Learning and Teaching Strategy/Methods

The module syllabus will be delivered via a programme of lectures and tutorials, supported by opportunities for student-centred learning. The lectures aim to introduce core concepts and consider key issues in mathematics and physics and will also provide opportunities to direct students towards recommended reading material and on-line resources. Tutorials will be based around problems presented for consideration and students will be encouraged to attempt relevant problems in advance of sessions and to be prepared to ask questions relating to the material. Student-centred learning aims to focus on problem-solving exercises, the completion of coursework, revision and exam preparation.

6. Assessment

The module will be assessed via a portfolio coursework assessment. The portfolio will consist of the students
being assessed throughout the module on specified discrete elements associated with problem-solving tasks.

Assessment Method	Weighting (%)	Learning Outcome(s) Tested	Submission Week	Group Work?
Portfolio	100	LO1,LO2,LO3	32	No

7. Professional, Statutory and Regulatory Body Requirements

None

8. Indicative Reading

Essential PTC® Mathcad Prime® 3.0: A Guide for New and Current Users by Brent Maxfield (Academic Press, 28 Oct. 2013), ISBN-13: 978-0124104105

1. Basic Module Data

Module Title:	**Foundation Year Pharmacy**
School:	**School of Pharmacy**
Module Code:	**PHR0001M**
Credit Rating:	**15**
Level:	**0**
Pre-requisites:	**None**
Co-requisites:	**None**
Barred Combinations	**None**
Module Co-ordinator(s):	**Penny Mosley**

2. Module Synopsis

This module aims to enable students to gain an understanding of their chosen degree and career path, as well as supporting them in their personal development as reflective learners and scientists. Shaped around a series of tutorials and seminars, students will explore current and future developments in pharmacy and the pharmaceutical industry. At the same time they will reflect on their personal skills and traits relevant to their chosen careers, and will be supported in developing a reflective portfolio of evidence relating to these skills and traits.

3. Outline Syllabus

- The Pharmaceutical Industry and the Profession of Pharmacy - including national and international perspectives
- Personal traits and skills development - including attitudes, knowledge and skills relevant to chosen careers

4. Module Learning Outcomes

By the end of this module students will be provided opportunities to:

LO1: describe key features of the pharmaceutical industry and the profession of pharmacy, including current and possible future developments,
LO2: demonstrate team-working, presentation, and written and oral communication skills relevant to the profession of pharmacy and working in the pharmaceutical industry.
LO3: demonstrate engagement with reflective learning and personal development.

5. Learning and Teaching Strategy/Methods

Module content will be delivered by group tutorials and in seminars. Students will be encouraged to learn by enquiry and reflection, and will be guided in their personal and professional development by tutors from the School of Pharmacy. Where appropriate, content will be shaped towards students' chosen degree and career path. The tutorial and seminar format aims to enable formative feedback and support opportunities for students as they develop the three assessment components throughout the module.

6. Assessment

This module is assessed by coursework.

Assessment Method	Weighting (%)	Learning Outcomes Tested	Submission Week	Group Work?
Report 750 words relating to the future of the pharmaceutical industry and profession of pharmacy	30	LO1; LO2	25	No
Presentation - PBL Problem Based Learning group-work task	30	LO1; LO2; LO3	32	Yes
Portfolio Evidence-based reflective portfolio equivalent to 1,000 words	40	LO1; LO2; LO3	32	No

7. Professional, Statutory and Regulatory Body Requirements

Students who are registered on the Pharmacy with Foundation Year route are subject to the same requirements as a MPharm Master of Pharmacy programme, including requirements relating to DBS and occupational health checks, General Pharmaceutical Council's Code of Conduct for Pharmacy Students and the University of Lincoln Fitness to Practise.

There are no specific requirements for students on the BSc Pharmaceutical Sciences route.

8. Indicative Reading

Websites:

- ABPI - Association of the British Pharmaceutical Industry
  - http://www.abpi.org.uk/Pages/default.aspx
- Royal Pharmaceutical Society
  - http://www.rpharms.com/home/home.asp
- General Pharmaceutical Council of Great Britain
  - https://www.pharmacyregulation.org/

Texts

- Modern pharmaceutical industry: a primer
  - Jacobsen, Thomas M., Wertheimer, Albert I. 2010
- Bad pharma how medicine is broken and how we can fix it
  - Goldacre, Ben. 2013
- Bad science
  - Goldacre, Ben. 2008

Appendix VI – Progression Criteria

The assessment regulations governing the Foundation Year are the same as those for Undergraduate degrees subject to the specified requirements below.
The Foundation Year will normally be part of a four year 480 credit programme and students who successfully meet the progression standard shall move onto Level One of the relevant degree programme. Below find an excerpt from the undergraduate regulations pertaining to progression.

H.1 Progression Standard

1.1. A student shall not progress from Level Zero to Level One of the undergraduate programmes of study available to them until the Board of Examiners is satisfied that the student is eligible to proceed.

1.2. The progression standard shall be the achievement of 120 credits at a minimum pass mark of 40% in each module. In addition to this general progression standard additional subject specific requirements are detailed in section 1.3.

1.3. Additional progression requirements for the relevant named programmes are:

1.3.1. Chemistry with Science Foundation Year BSc and MChem

• a mark of at least 50% in the Fundamentals of Chemistry module

1.3.2. Forensic Chemistry with Science Foundation Year BSc and MChem

• a mark of at least 50% in the Fundamentals of Chemistry module

1.3.3. Forensic Science with Science Foundation Year BSc

• a mark of at least 50% in the Fundamentals of Chemistry module

1.3.4. Engineering with Science Foundation Year BSc

• a mark of at least 50% in the Mathematics for Engineers and Scientists module
AND
• a mark of at least 50% in the Mathematical Methods module

1.3.5. Mathematics with Science Foundation Year BSc and MMath

• a mark of at least 60% in the Mathematics Methods module

1.3.6. Mathematics and Physics with Science Foundation Year BSc and MMath

• a mark of at least 60% in the Mathematics Methods module

1.3.7. Mathematics with Philosophy with Science Foundation Year BSc

• a mark of at least 60% in the Mathematics Methods module

1.3.8. Mathematics and Computer Science with Science Foundation Year BSc

• a mark of at least 60% in the Mathematics Methods module

1.3.9. Physics with Science Foundation Year BSc and MPhys

• a mark of at least 60% in the Mathematical Methods module
AND
• a mark of at least 60% in the Fundamentals of Physics module

1.3.10. Physics with Philosophy with Science Foundation year BSc and MPhys

• a mark of at least 60% in the Mathematical Methods module
AND
• a mark of at least 50% in the Fundamentals of Physics module

1.3.11. Life Sciences with Science Foundation Year BSc

• a mark of at least 60% in the Fundamentals of Biology module

1.3.12. Pharmaceutical Science with Science Foundation Year BSc

• a mark of at least 50% in the Fundamentals of Chemistry module
AND
• a mark of at least 50% in the Fundamentals of Biology module

1.3.13. Pharmacy with Science Foundation Year MPharm

• a mark of at least 60% in all modules