UNIVERSITY OF LEICESTER

Programme Specification (Undergraduate)

FOR ENTRY YEAR: 2024/25

Date created: N/A **Last amended:** 25/11/2023 **Version no.** 1

1. Programme title(s) and code(s):

a) STEM Foundation Year

The STEM Foundation Year programme provides progression onto BSc / Integrated Masters degrees in Chemistry, Computer Science, Creative Computing, Engineering, Environmental Science, Geography, Geology, Mathematics, and Physics and Astronomy. It is not available as a stand-alone award.

HECOS Code

HECOS Code	%
100390	100

b) UCAS Code (where required)

Geography with foundation year	F992
Geology with foundation year	F993
Chemistry with foundation year	F991
Engineering with foundation year	H991
Environmental Science with foundation year	XNNN
Physics with foundation year	F995
Mathematics with foundation year	G992
Computer Science with foundation year	G991
Creative Computing with foundation year	G993

2. Awarding body or institution:

University of Leicester

3. a) Mode of study

Full-time

b) Type of study

Campus-based

4. Registration periods:

The STEM Foundation Year will count towards the normal and maximum registration period of the degree programme that a student may progress to.

The normal period of registration for the STEM Foundation Year is one year (progressing to a 3 or 4 year UG degree).

The maximum period of registration for the STEM Foundation Year is 2 years.

5. Typical entry requirements

A-level: BCC/CCC or points equivalent from best three A-levels, to include appropriate subject(s).

BTEC Diploma: DDM in an appropriate scientific or engineering discipline.

Access to HE courses in Science and Engineering: 45 L3 credits, including 24 at Distinction.

The STEM Foundation Year is designed to provide a route to higher education for applicants who do not have the right entry requirements for first year entry of the undergraduate programmes.

6. Accreditation of Prior Learning

Not applicable

7. Programme aims

The programme aims to:

- Develop the professional attributes and study skills that will equip students to thrive in a undergraduate degree programme and beyond
- Enable students to progress to an appropriate undergraduate programme through the acquisition of discipline specific knowledge at the required standard

8. Reference points used to inform the programme specification

- QAA Benchmarking Statement
- Framework for Higher Education Qualifications (FHEQ)
- UK Quality Code for Higher Education
- University Education Strategy
- University Assessment Strategy [log in required]
- University of Leicester Periodic Developmental Review Report
- External Examiners' reports (annual)
- United Nations Education for Sustainable Development Goals
- Student Destinations Data
- Specification documents for various A-level mathematics qualifications
- Specification documents for various A-level science (Physics, Chemistry, Biology, Geography, Geology, Computer Science) qualifications
- Programme (and module) specifications from the following courses to which this foundation year provides progression

9. Programme Outcomes

Unless otherwise stated, programme outcomes apply to all awards specified in 1. Programme title(s).

a) Discipline specific knowledge and competencies

i) Mastery of an appropriate body of knowledge

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should have knowledge of mathematics and science to the appropriate A level syllabus	• Course texts and other specially prepared resources • Lectures, problem-solving classes • Group work/peer learning. • Regular coursework • Small group tutorials	• Online core-learning exercises • Coursework assessments • Scientific/technical writing assessments • End of semester examinations

ii) Understanding and application of key concepts and techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to apply science and mathematical knowledge to specific scenarios	• Course texts and other specially prepared resources • Lectures, problem-solving classes • Group work/peer learning • Regular coursework • Small group tutorials	• Online core-learning exercises • Coursework assessments • Scientific/technical writing assessments • End of semester examinations

iii) Critical analysis of key issues

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to: • explain the process of scientific enquiry, the roles of experiment and theory, and the limits of science • evaluate the reliability of information retrieved from electronic resources	• Induction sessions • Resource based learning • Group work/peer learning • Support Sessions	• Experimental/project work • Scientific/technical writing assessments

iv) Clear and concise presentation of material

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to communicate scientific ideas through written material and oral presentations	• Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Small group tutorials • Supprot sessions • Formative feedback on presentation and reports	• Scientific/technical writing assessments • Tutorial presentation(s)

v) Critical appraisal of evidence with appropriate insight

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to: • distinguish between precision and accuracy, and explain the role of experimental error in the scientific process • evaluate the reliability of data and appreciate associated errors and uncertainties	Embedded throughout the programme in: • Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Group work/peer learning • Small group tutorials • Experimental/project work	• Experimental/project work • Scientific/technical writing assessments

vi) Other discipline specific competencies

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to: • use mathematical models to explain various features of scientific phenomena • use mathematics as an integral part of the scientific process • develop observational and descriptive skills in the sciences	Embedded throughout the programme in: • Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Group work/peer learning • Small group tutorials • Experimental/project work • Regular coursework	• Online core-learning exercises • Coursework assessments • Experimental/project work • Scientific/technical writing assessments • End of semester examinations

b) Transferable skills

i) Oral communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to verbally communicate mathematical and scientific ideas at an appropriate level	• Course texts and other specially prepared resources. • Lectures, seminars, problem-solving classes. • Group work/peer learning. • Small group tutorials with formative feedback • Support sessions	• Small group tutorials • Problem-solving classes • Tutorial presentation(s)

ii) Written communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to clearly communicate mathematical and scientific ideas in written form	• Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Group work/peer learning • Small group tutorials with formative feedback • Support sessions	• Small group tutorials • Problem-solving classes • Scientific/technical writing assessments • Academic Support sessions • End of semester examinations

iii) Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to • use electronic resources to find information • critically evaluate any retrieved information • use IT resources to process data • use IT to present information and data	• Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Group work/peer learning • Small group tutorials with formative feedback • Support sessions	• Scientific/technical writing assessments • Tutorial presentation(s)

iv) Numeracy

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to apply core mathematical techniques to solve numerical problems and analyse data	• Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Group work/peer learning • Small group tutorials with formative feedback • Regular coursework	• Online core-learning exercises • Coursework assessments • Experimental/project work • Scientific/technical writing assessments • End of semester examinations

v) Team working

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to work in groups to solve mathematical and scientific problems	• Seminars and problem-solving classes • Group work/peer learning • Small group tutorials • Experimental/project work with formative feedback • Support sessions	• Seminars and problem-solving classes. • Experimental/project work

vi) Problem solving

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
To apply scientific and mathematical knowledge to a wide variety of problems	• Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Group work/peer learning • Small group tutorials	• Online core-learning exercises • Coursework assessments • Scientific/technical writing assessments • Experimental/project work • End of semester examinations

vii) Information handling

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to correctly analyse and present scientific information and draw appropriate conclusions	• Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Small group tutorials • Support sessions	• Online core-learning exercises • Coursework assessments • Experimental/project work • Scientific/technical writing assessments • End of semester examinations

viii) Skills for lifelong learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Students should be able to • make and organise an ordered set of course and revision notes • organise their time effectively • record and reflect on their learning experiences • assimilate and draw accurate conclusions from a wide variety of data and other resources • effectively communicate scientific conclusions in both written and oral form	• Course texts and other specially prepared resources • Lectures, seminars, problem-solving classes • Small group tutorials • Group work/peer learning • Experimental/project work • Support sessions	• Online core-learning exercises • Scientific/technical writing assessments • Coursework assessments • Experimental/project work • End of semester examinations • Academic support sessions • Tutorial presentation(s)

10. Progression points

The following additional award requirements for this programme have been approved.

Semester 1 Progression Board (February):

Modules FS0031 Mathematics 1, FS0041 Mechanics 1, FS0043 Waves and Matter, FS0061 Scientific Computing, and FS0062 Introductory Linux are assessed in Semester 1. Resits will be offered for these modules where failed, apart from any non-resittable coursework assessment components, as detailed in the module specification documents. The Semester 1 Progression Board will recommend termination of a student from their course in the following scenario:

- Where a student has failed any module from FS0031 or FS0041 or FS0043 or FS0062, at Grade F, and cannot reach the pass mark for the module after resit of the re-sittable assessment components.

Progression from Year 0 to Year 1:

Students will be required to pass **all** Foundation Year modules within their stream.

The pass mark for all modules is 40%.

Resits will **normally** be offered for all modules **except** for the following lab-based modules:

- FS0023 Laboratory Skills
- FS0024 Engineering Principles and Experimentation
- CH0062 Introductory Chemistry Practical

Reassessment will ordinarily be offered on one occasion only. However, certain coursework assessment components are not-resittable, as detailed in the module specification documents.

For students intending to study degrees in **Computer Science and Creative Computing,** there are **no other** additional progression requirements.

For students intending to study degrees in **Environmental Science, Geography, and Geology** the additional progression requirement is that for CH0062 Introductory Chemistry Practical, a student must complete at least six out of the eight lab sessions and associated write-ups (see Appendix 3: Progression Table).

For students intending to study degrees **in Mathematics**, there is the additional progression requirement to pass the examination component of both **FS0031 Mathematics 1** and **FS0032 Mathematics 2** (see Appendix 3: Progression Table).

For students intending to study degrees **in Physics and Astronomy**, there is the additional progression requirement to pass the examination component of both **FS0031 Mathematics 1** and **FS0032 Mathematics 2**, and that for **FS0023 Laboratory Skills** a student must complete four out of the five laboratory sessions which occur in each semester (see Appendix 3: Progression Table).

For students intending to study degrees **in Engineering**, there is the additional progression requirement to pass the examination component of both **FS0031 Mathematics 1** and **FS0032 Mathematics 2**, and that for **FS0024 Engineering Principles and Experimentation** a student must complete four out of the five experimental sessions which occur in each semester (see Appendix 3: Progression Table).

For students intending to study degrees **in Chemistry**, there is the additional progression requirement to pass the examination component of both **FS0031 Mathematics 1**, and that for CH0062 Introductory Chemistry Practical, a student must complete at least six out of the eight lab sessions and associated write-ups (see Appendix 3: Progression Table).

Where a student fails to meet the progression requirement to obtain 40% in the examination component of a mathematics module (FS0031 and/or FS0032), a resit of the examination will be offered even if the module has been passed.

In cases where a student has failed to meet a requirement to progress, they will be required to withdraw from the course. However, a student who passes 120 credits, but fails to meet the additional modular school progression requirements after reassessment, may be offered a transfer to another course with lesser progression requirements.

11. Special features

Not applicable.

12. Indications of programme quality

The teaching methodology for STEM foundation year programme has been informed from established foundation year programmes within the university.

13. External Examiner(s) reports

Not applicable.

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Appendix 1: Programme structure (programme regulations)

The University regularly reviews its programmes and modules to ensure that they reflect the current status of the discipline and offer the best learning experience to students. On occasion, it may be necessary to alter particular aspects of a course or module.

Updates to the programme

Academic Year affected	Stream/modules affected	Notes
2024/25	Stream 1 - Geoscience	Addition of new Environmental Science pathway.
2024/25	Stream 4 – Engineering	Engineering stream separated out from Physics stream.
2024/25	FS0024 Engineering Principles and Experimentation	New module on Engineering stream
2024/25	Stream 6 – Computing	Stream title changed from Informatics
2024/25	Stream 6 - Computing	New core modules: FS0062 Introductory Linux, FS0063 Algorithms and Logic, and FS0064 The Digital World
2024/25	Stream 6 - Computing	Removal of CO0004 Creating Software Applications, CO0006 Generative Design and CO0007 Creative Thinking
2024/25	CH0062 Introductory Chemistry Practical	Module title changed from Introductory Chemistry Laboratory
Changes to progression requirements – see Section 10 above.		

Stream 1: Geoscience

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	45 credits	30 credits	45 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	FS0031	Mathematics 1	15 credits
Sem 1	FS0061	Scientific Computing	15 credits
Sem 2	CH0062	Introductory Chemistry Practical	15 credits
Sem 2	GY0011	Principles of Earth Science and Earth Systems	15 credits
Sem 2	FS0033	Introductory Data Analysis	15 credits
Year long	FS0045	Introductory Earth and Environmental Science	30 credits
Year long	FS0050	Academic Support	15 credits

Stream 2: Chemistry

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	45 credits	45 credits	30 credits
Optional	n/a	n/a	15 credits

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	FS0031	Mathematics 1	15 credits
Sem 1	FS0043	Waves and Matter	15 credits
Sem 1	FS0061	Scientific Computing	15 credit
Sem 2	CH0062	Introductory Chemistry Practical	15 credits
Sem 2	FS0033	Introductory Data Analysis	15 credits
Year long	CH0061	Introduction to Chemistry	30 credits
Year long	FS0050	Academic Support	15 credit

Stream 3: Physics & Astronomy

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	30 credits	45 credits	45 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	FS0031	Mathematics 1	15 credits
Sem 1	FS0041	Mechanics 1	15 credits
Sem 1	FS0043	Waves and Matter	15 credits
Sem 2	FS0032	Mathematics 2	15 credits
Sem 2	FS0042	Mechanics 2	15 credits
Sem 2	FS0044	Electromagnetism and Quantum Physics	15 credits
Year long	FS0023	Laboratory Skills	15 credits
Year long	FS0050	Academic Support	15 credits

Stream 4: Engineering

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	30 credits	45 credits	45 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	FS0031	Mathematics 1	15 credits
Sem 1	FS0041	Mechanics 1	15 credits
Sem 1	FS0043	Waves and Matter	15 credits
Sem 2	FS0032	Mathematics 2	15 credits
Sem 2	FS0042	Mechanics 2	15 credits
Sem 2	FS0044	Electromagnetism and Quantum Physics	15 credits
Year long	FS0024	Engineering Principles and Experimentation	15 credits
Year long	FS0050	Academic Support	15 credits

Stream 5: Mathematics

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	45 credits	30 credits	45 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	FS0031	Mathematics 1	15 credits
Sem 1	FS0041	Mechanics 1	15 credits
Sem 2	FS0032	Mathematics 2	15 credits
Sem 2	FS0042	Mechanics 2	15 credits
Sem 2	FS0033	Introductory Data Analysis	15 credits
Year long	FS0060	Introduction to Programming	30 credits
Year long	FS0050	Academic Support	15 credits

Stream 6: Computing

Credit breakdown

Status	Year long	Semester 1	Semester 2
Core	45 credits	30 credits	45 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	FS0031	Mathematics 1	15 credits
Sem 1	FS0062	Introductory Linux	15 credits
Sem 2	FS0063	Algorithms and Logic	15 credits
Sem 2	FS0064	The Digital World	15 credits
Sem 2	FS0033	Introductory Data Analysis	15 credits
Year long	FS0060	Introduction to Programming	30 credits
Year long	FS0050	Academic Support	15 credits

Appendix 2: Module specifications

See undergraduate module specification database [login required] (Note - modules are organized by year of delivery).

Appendix 3: Progression Table

Degree Programme	Additional Progression Requirements
Chemistry *BSc with Foundation Year*	In addition to passing FS0031 with a module mark of at least 40%, a mark of at least 40% must be obtained in the FS0031 exam. In addition to passing CH0062 with a module mark of at least 40%, a student must complete at least six out of eight lab sessions and associated write-ups.
Computer Science *BSc with Foundation Year*	None
Creative Computing *BSc with Foundation Year*	None
Engineering *BEng with Foundation Year*	In addition to passing FS0031 and FS0032 with a module mark of at least 40%, a mark of at least 40% must be obtained in each of the FS0031 and FS0032 exams. In addition to passing FS0024 with a module mark of at least 40%, a student must complete four out of the five experimental sessions that occur in each semester.
Environmental Science *BSc with Foundation Year*	In addition to passing CH0062 with a module mark of at least 40%, a student must complete at least six out of eight lab sessions and associated write-ups.
Geography *BSc with Foundation Year*	In addition to passing CH0062 with a module mark of at least 40%, a student must complete at least six out of eight lab sessions and associated write-ups.
Geology *BSc with Foundation Year*	In addition to passing CH0062 with a module mark of at least 40%, a student must complete at least six out of eight lab sessions and associated write-ups.
Mathematics *BSc with Foundation Year*	In addition to passing FS0031 and FS0032 with a module mark of at least 40%, a mark of at least 40% must be obtained in each of the FS0031 and FS0032 exams.
Physics and Astronomy *BSc with Foundation Year*	In addition to passing FS0031 and FS0032 with a module mark of at least 40%, a mark of at least 40% must be obtained in each of the FS0031 and FS0032 exams. In addition to passing FS0023 with a module mark of at least 40%, a student must complete four out of the five laboratory sessions that occur in each semester.

Appendix 4: Skills Matrix

Programme Learning Outcomes	FSC023 Laboratory Skills	FSC024 Engineering Principles and Experimentation	FSC031 Mathematics 1	FSC032 Mathematics 2	FSC033 Introductory Data Analysis	FSC041 Mechanics 1	FSC042 Mechanics 2	FSC043 Waves & Matter	FSC044 Electromagnetism & Quantum Physics	FSC045 Introductory Earth and Environmental Science	FSC050 Academic Support	FSC060 Introduction to programming	FSC061 Scientific Computing	FSC062 Introductory Linux	FSC063 Algorithms and Logic	FSC064 The Digital World	CHC061 Introduction to Chemistry	CHC062 Introductory Chemistry Practical	GYC011 Principles of Earth Science & Systems
(a) Discipline specific knowledge and competencies																			
(vi) Other discipline specific competencies																			
Students should be able to use mathematical models to explain various features of scientific phenomena	x	x	x	x	x	x	x	x	x	x	x				x		x	x	x
Students should be able to view mathematics as an integral part of scientific method	x	x	x	x	x	x	x	x	x	x	x				x		x	x	x
Students should be able to develop observational and descriptive skills in the sciences	x	x			x					x	x	x	x	x	x	x	x	x	x
(ii) Written communication																			
Students should be able to clearly communicate mathematical and scientific ideas in written form	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
(iii) Information technology																			
Students should be able to use electronic resources to find information	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Students should be able to critically evaluate any retrieved information	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Students should be able to use IT resources to process data					x					x	x			x	x	x			
Students should be able to use IT to present information and data					x					x	x			x	x	x			x
(iv) Numeracy																			
Students should have mastery of specific elements of science and mathematics at AS and A level standard	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x
(v) Team working																			
Students should be able to work in groups to solve mathematical and scientific problems			x	x	x	x	x	x	x	x	x				x	x	x	x	x
(vi) Problem solving																			
To apply scientific and mathematical knowledge to a wide variety of problems	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x
(vii) Information handling																			
Students should be able to correctly analyse and present scientific information and draw appropriate conclusions	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
(viii) Skills for lifelong learning																			
Students should be able to make and organise an ordered set of course and revision notes	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Students should be able to organise their time effectively	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Students should be able to record and reflect on their learning experiences											x				x	x			
Students should be able to assimilate and draw accurate conclusions from a wide variety of data and other resources	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Students should be able to effectively communicate scientific conclusions in both written and oral form	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x