Programme Specification (Undergraduate) FOR ENTRY YEAR: 2026/27

Date created: 21/12/2022 **Last amended:** 27/02/2026 **Version no.** 1

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

Medical Genetics BSc

Medical Genetics Dip HE*

Medical Genetics Cert HE*

Medical Biosciences (Genetics) BSc*

With optional Year in Industry or Year Abroad (in Europe, USA or Japan)

Notes

* An award marked with an asterisk is only available as an exit award and is not available for students to register onto.

a) HECOS Code

HECOS Code	%
100259	67%
100345	33%

b) UCAS Code (where required)

C431

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 normal period of registration is three years (four years for degrees 'with a year in industry/abroad')

The maximum period of registration five years (six years for degree 'with a year in industry/abroad')

5. Typical entry requirements

A-levels: typical offer AAB/ABB, normally including at least two relevant science subjects from Biology (preferred), Chemistry, Physics or Maths.

EPQ with A-levels: typical offer BBB + EPQ at grade B. A-level subjects to include two relevant science subjects from Biology (preferred), Chemistry, Physics or Maths. General Studies not accepted.

GCSE: At least Grade C in both English Language and Maths (if not held at A-level)

Access to HE Diploma: Pass relevant diploma with 45 credits at level three, with distinctions in some subjects.

International Baccalaureate: Pass Diploma with 32/30 points, including at least two relevant science subjects at Grade 6 at higher level.

BTEC Nationals: Pass relevant Diploma with DDD plus five GCSEs at B or above including two relevant sciences.

6. Accreditation of Prior Learning

Direct 2nd year entry is considered subject to completion of a level 4 programme of comparable content to those studies in year 1 of this programme, passing all modules and with a year mark of at least 65%.

7. Programme aims

The programme aims to provide:

- a flexible teaching and learning programme of high quality that is informed by an active research environment in which students develop their own interests;
- a stimulating and supportive working environment;
- an education that will enable graduates to follow a variety of careers including higher degrees and research;

and to enable students to:

- have a broad appreciation of genetics and related disciplines with an emphasis on human health and disease, and advanced knowledge of one or more areas including appreciation of aspects of the underpinning research;
- develop a range of skills including practical and transferable skills;
- gain experience, within the 4 year Industry/abroad options, by working in in an external research laboratory or an American, Japanese or another European University.

In addition, for the 'with a Year abroad' variants

- The 'Year Abroad' variant of this programme is offered in accordance with the University's standard specification for the experiential year abroad variant.

In addition, for the 'with Industry' variants

- The 'Year in industry' variant of this programme is offered in accordance with the University's standard specification for year in industry programme variants.
- To provide experience of applications of professional and discipline-specific skills in Industry and to reinforce knowledge through its use in different environments.

8. Reference points used to inform the programme specification

- QAA Benchmarking Statement
- Framework for Higher Education Qualifications (FHEQ)
- UK Quality Code for Higher Education
- Education Strategy
- University Assessment Strategy [login required]
- University of Leicester Periodic Developmental Review Report
- External Examiners' reports (annual)
- United Nations Education for Sustainable Development Goals
- Student Destinations Data
- Relevant information from learned societies

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?
Demonstrate an awareness of main principles of biological sciences, biomedical sciences and related disciplines and explain core concepts of their chosen discipline. Describe current areas of advance in their chosen specialisation(s) within medical genetics.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination, coursework (e.g. practical reports, written reports, data analysis, field reports, oral presentations, group reports, video production, poster production, dissertation)

ii) Understanding and application of key concepts and techniques

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Describe and apply safely appropriate experimental procedures in medical genetics and related disciplines. Apply a scientific approach to the solution of problems in the context of their chosen specializations and appreciate the rationale of experimental design. Explain core concepts of their chosen discipline.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

iii) Critical analysis of key issues

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate a capacity for scientific analysis of issues in the context of medical genetics and related disciplines.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

iv) Clear and concise presentation of material

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Communicate orally and in writing concepts and arguments in medical genetics and related disciplines.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

v) Critical appraisal of evidence with appropriate insight

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate the capacity to analyse and criticise evidence from both experimental procedures and the literature.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

vi) Other discipline specific competencies

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
In the year in industry/abroad programmes, demonstrate the capacity to work in an industrial or other research laboratory or study in another European, American or Japanese University.	Laboratory work, research project	Research report, practical reports

b) Transferable skills

i) Oral communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Communicate orally, with clarity and coherence, concepts and arguments in medical genetics and associated biological sciences disciplines.	Tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work.	Oral presentations, group reports, tutorials.

ii) Written communication

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Communicate in writing, with clarity and coherence, concepts and arguments in medical genetics and associated biological sciences disciplines.	Tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work.	Examination and coursework

iii) Information technology

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate the effective use of IT for accessing databases and scientific literature; manipulating, processing and presenting data; presenting written assignments.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

iv) Numeracy

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Understand and manipulate numerical data, solve problems using a variety of methods and apply numerical and statistical techniques to data analysis.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

v) Team working

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate the ability to work as part of a group	Tutorials, group work, research projects.	Group reports, use of class data to generate practical reports

vi) Problem solving

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Apply a scientific approach to the solution of problems in the context medical genetics and appreciate the rationale of experimental design.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

vii) Information handling

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate the capacity to access a variety of resource materials and to analyse evidence from both experimental procedures and the literature.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, and private study.	Examination and coursework

viii) Skills for lifelong learning

Intended Learning Outcomes	Teaching and Learning Methods	How Demonstrated?
Demonstrate the acquisition of the skills and attributes necessary for lifelong learning, including: intellectual independence, effective time management, the ability to work as part of a team, the use of IT and the capacity to access and utilise a variety of resource materials.	Lectures, tutorials, seminars, practical classes, computer classes, discussions, fieldwork (where appropriate), research projects, group work, directed reading, resource-based learning, private study, career development programme.	Examination, coursework, personal development planning.

Year Abroad

In addition, for the 'with a Year abroad' variants the additional programme outcomes apply

Year in Industry

In addition, for the Year in Industry' variants the additional programme outcomes apply

10. Progression points

This programme follows the standard Scheme of Progression set out in Senate Regulations – see the version of Senate Regulation 5 governing undergraduate programmes relevant to the year of entry.

The following dispensations from Senate Regulation 5 have been approved by the University:

The following modules on these programmes are not eligible for compensation and must be passed at the relevant pass mark (40.00% at Levels 4-6) for the degree to be awarded:

- BS3101 - Research Project A
- BS3102 - Research Project C
- BS3601 - Research Project B

In cases where a student has failed to meet a requirement to progress he or she will be required to withdraw from the course.

a) Year abroad

For the Year Abroad variant (for experiential Year Abroad only) the additional progression points apply

b) Year in Industry

For the Year in Industry variant, the additional progression points apply

11. Criteria for award and classification

This programme follows the standard scheme of undergraduate award and classification set out in Senate Regulations – see the version of *Senate Regulation 5 governing undergraduate programmes* relevant to the year of entry – with the following approved exception:

To gain the Royal Society of Biology accredited degree of BSc Medical Genetics students must pass the project modules (BS3101/BS3102, BS3601/BS3102) with a mark of 40.00% or higher. Students who meet all other progression and awarding regulations but fail to meet this accreditation requirement may be awarded the non-accredited degree Medical Biosciences (Genetics).

12. Special features

Students receive a broad education in biological sciences, biomedical sciences and related disciplines in the first year, along with training in key skills. As the course progresses into the second and third years the students have the flexibility to specialise progressively within the specified subject streams or to retain a broader perspective. Opportunities are available to take placements within related industries, or to study in other European, American or Japanese universities.

The School has a strong reputation for research and the range of staff expertise enables provision of research-led programmes that offer breadth and depth.

BS2030 and MB2020 are co-requisites for BS2033, and there is a cap of 20 on the BS2033 module, selected on a first come first served basis.

12a. Research-inspired Education

Students on this programme will advance through the four quadrants of the University of Leicester Research-inspired Education Framework as follows:

RiE Quadrant	Narrative
Research-briefed Bringing staff research content into the curriculum.	**Research-briefed**: Staff introduce their research interests to each student cohort, linking their research to relevant teaching topics. All lecture-based modules include information on research that underpins current knowledge. First-year modules feature "flagship" lectures from leading researchers, demonstrating how fundamental knowledge and skills are applied in cutting-edge research. In later years, specialised modules reflect staff research programmes. Practical classes, workshops, and authentic assessments are based on real-world research.
Research-based Framed enquiry for exploring existing knowledge.	**Research-based:** From Year one, students engage in laboratory and fieldwork, gaining insight into the scientific method, hypothesis testing and data handling. Experimental and research study design are formally taught and practiced in Year 2, through core *Research Skills* modules where students work in teams to devise and present original research proposals.

Research-oriented Students critique published research content and process.	**Research-oriented:** Familiarity with research publications is introduced in Year one tutorials and builds throughout our programmes, particularly in the Year two *Research Skills* modules. In year three, students critically evaluate published research through essays, articles, presentations and debates. The third-year project requires students to frame their research within the context of existing knowledge via a literature review, emphasising the provisional and incomplete nature of scientific knowledge.
Research-apprenticed Experiencing the research process and methods; building new knowledge.	**Research-apprenticed:** In the third-year capstone project, students build on their prior learning to create new knowledge. Experimental projects may involve laboratory, field or computer-based work, generating and analysing novel data. Analytical projects answer scientific questions through systematic literature reviews, meta-analyses, surveys, and/or new analysis of provided data.

As part of studying at a research-intensive university, students on this programme have the following extra or co-curricular opportunities available to them to gain exposure to research culture:

Students receive an annual Research Newsletter summarising recent research and linking to publications by staff who teach on the programme, highlighting their high-profile research and impact on society, the economy and healthcare. This is designed to encourage students to apply for a range of summer research internships, which may be funded by learned societies. Students are supported to identify and apply to internal and external research internships and summer research programmes by a dedicated member of our academic staff.

Teaching on this programme will be research-informed (it draws consciously on systematic inquiry into the teaching and learning process itself) in the following way:

The School of Biological Sciences supports all staff involved in teaching to gain a recognised Higher Education teaching qualification in which they demonstrate their use of teaching theory to support their own practice and reflect on their current teaching and continuing professional development. We also run a regular 'BioEd matters' seminar and workshop series in which internal and external speakers present pedagogical research, report back on teaching conferences and teaching innovations, and support best practice through reflection and evaluation.

12b. Work-related learning

The workload of all students on this programme includes the opportunity to engage with *at least* 100 hours of employer informed, work-related learning activity. Further information regarding work-related learning is available online.

13. Indications of programme quality

External examiner evaluations.

Oversight by Programme Team, School Education Committee and Education Quality, Enhancement and Development Team.

14. External Examiner(s) reports

The details of the External Examiner(s) for this programme and the most recent External Examiners' reports for this programme can be found at exampapers@Leicester [log-in required]

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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	Module	Change
2028/29	Analytical Project	Was 30 credits, now 45
2028/29	Education Project	No longer offered

Medical Genetics BSc

Level 4/Year 1 2026/27

Credit breakdown

Status	**Year long**	**Semester 1**	**Semester 2**
Core	n/a	60 credits	60 credits
Optional	n/a	n/a	n/a

120 credits in total

Core modules

Delivery period	**Code**	**Title**	**Credits**
Sem 1	BS1030	The Molecules of Life – An Introduction to Biochemistry and Molecular Biology	30 credits

Delivery period	Code	Title	Credits
Sem 1	BS1040	The Cell – An Introduction to Microbiology and Cell Biology	30 credits
Sem 2	BS1050	From Individuals to Populations – An Introduction to Genetics	15 credits
Sem 2	BS1060	Multicellular Organisation – An Introduction to Physiology, Pharmacology and Neuroscience	30 credits
Sem 2	MB1080	An Introduction to Medical Bioscience	15 credits

Notes
N/A

Level 5/Year 2 2027/28

Credit breakdown

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

120 credits in total

Core modules

Delivery period	Code	Title	Credits
Sem 1	BS2200	Research Skills 1	15 credits
Sem 1	MB2051	Current Issues in Medical Genetics	15 credits
Sem 1	BS2009	Genomes	15 credits
Sem 2	BS2000	Research Skills 2	15 credits
Sem 2	BS2040	Bioinformatics	15 credits
Sem 2	BS2026	Genes, Development & Inheritance	15 credits

Notes
N/A

Option modules

Delivery period	Code	Title	Credits
Semester 1	BS2013	Physiology and Pharmacology	15 credits
Semester 1	BS2015	Physiology of Excitable Cells	15 credits
Semester 1	BS2030	Principles of Microbiology	15 credits
Semester 1	BS2094	Introduction to Python Programming for Bioscientists	15 credits
Semester 1	BS2093	Protein Structure and Function	15 credits
Semester 1	MB2020	Medical Microbiology	15 credits
Semester 2	BS2004	Contemporary Techniques in Biological Data Analysis	15 credits
Semester 2	BS2014	Exercise Physiology and Pharmacology	15 credits
Semester 2	BS2032	Immunology and Eukaryotic Microbiology	15 credits
Semester 2	BS2033	Immunology and Eukaryotic Microbiology (with Science Enterprise Trip)	15 credits
Semester 2	BS2066	Behavioural Neurobiology	15 credits
Semester 2	BS2077	Neurobiology and Animal Behaviour	15 credits
Semester 2	BS2091	From Genes to Proteins	15 credits
Semester 2	BS2092	Molecular and Cell Biology	15 credits

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

Level 6/Year 3 2028/29

Credit breakdown

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

120 credits in total

Core modules

Alternative A (Experimental project)

Delivery period	Code	Title	Credits
Semester 1	BS3101	Research Project A AND	15 credits
Year long	BS3102	Research Project C	30 credits

Alternative B (Analytical project)

Delivery period	Code	Title	Credits
Semester 1	BS3601	Research Project B AND	15 credits
Year long	BS3102	Research Project C	30 credits

Students choose ONE project type from the above options. Research projects are worth 45 credits in total.

Delivery period	Code	Title	Credits
Sem 1	BS3000	Evolutionary Genetics	15 credits
Sem 1	BS3031	Human Genetics	15 credits
Sem 2	BS3011	Microbial Pathogenesis and Genomics	15 credits
Sem 2	MB3050	Medical Genetics	15 credits

Option modules

Delivery period	Code	Title	Credits
Semester 2	BS3003	Cancer Cell and Molecular Biology	15 credits
Semester 2	BS3013	Human and Environmental Microbiomics	15 credits
Semester 2	BS3016	Neuroscience Futures	15 credits
Semester 2	BS3033	Physiology, Pharmacology and Behaviour	15 credits
Semester 2	BS3056	Cellular Physiology of the Cardiovascular System	15 credits
Semester 2	BS3069	Introduction to Astrobiology and the Origin of Life	15 credits
Semester 2	NT3200	Sustainability Enterprise Partnership Project	15 credits

Notes
This is an indicative list of option modules and not definitive of what will be available. Option module choice is also subject to availability, timetabling, student number restrictions and, where appropriate, students having taken appropriate pre-requisite modules.

Appendix 2: Module specifications

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

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Appendix 3: Module mapping matrix

Research-inspired Education: Module Mapping Matrix

Please refer to the Research-inspired Education guidance document when completing the sections below. ***This is an internally-facing document which will not be shared directly with prospective or future students.***

Sub-section i: Articulation of research-inspired components within taught modules.

RiE Quadrant	Module code and name	Core[1]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-briefed Bringing staff research content into the curriculum.	All modules	Core and options	Staff teaching on the module introduce themselves and their research interests.
	All lecture-based modules	Core and options	Include information on research that underpins current knowledge
	BS1030 The Molecules of Life BS1040 The Cell	Core	"Flagship" lectures from leading researchers, demonstrate how fundamental knowledge and skills are applied in cutting-edge research
	BS1030 The Molecules of Life	Core	As a first assessment (Scientific Summary) students interview staff members to explore their research. Students are required to find and cite at least one primary research article authored by the staff member/s.
	BS1050 From Individuals to Populations - An Introduction to Genetics	Core	In BS1050 design of practical and associated assessment are based on research on circadian rhythms, undertaken in the Department of Genetics, Genomics and Cancer Sciences. (This is an example. The use of UoL or other research to inform the design of practicals, workshops and tutorials is common in several modules)
	MB1080 Introduction to Medical Bioscience	Core	Introduces the research basis of current knowledge in selected medical bioscience fields.

[1] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).

RiE Quadrant	Module code and name	Core[2]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-based Framed enquiry for exploring existing knowledge.	BS2200 Research Skills 1	Core	Students research and write a magazine article showing how biological research is helping to address barriers to achieving UN Sustainable Development Goals.
	BS2000 Research Skills 2	Core	Students work in a group to develop and write a research grant proposal.
	MB1080 Introduction to Medical Bioscience	Core	Statistics tutorials and bioinformatics practical are based on real world examples of medical bioscience research studies
	MB2051 Current issues in Medical Genetics	Core	Students write a dissertation in which they explore a current issue in medical genetics in detail. They explain the scientific background to the issue and evaluate the ethical, social or political arguments surrounding it.

RiE Quadrant	Module code and name	Core[3]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-oriented Students critique published research content and process.	BS2000 Research Skills 2	Core	Students work in a group to develop and write a research grant proposal. This involves researching and critiquing published research content and process, to provide background information for the proposal introduction and information on suitable research processes.
	MB2051 Current issues in Medical Genetics	Core	Students summarise a scientific research paper for a lay audience.
	BS3000 Evolutionary Genetics	Core	Students produce a graphical abstract (formative) and an essay (summative), based on critical evaluation of a recent research publication.
	BS3031 Human Genetics	Core	Students critically assess research papers in the field of human genetics to extract essential information, which they incorporate into essays in the final examination.

[2] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).
[3] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).

RiE Quadrant	Module code and name	Core[3]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
	MB3050 Medical Genetics	Core	Students appraise a current research paper and give an oral presentation on it.

RiE Quadrant	Module code and name	Core[4]	How the module delivers this aspect of the RiE quadrant (one or two sentences)
Research-apprenticed Experiencing the research process and methods; building new knowledge.	BS3102 Research Project C	Core	Capstone projects involve laboratory, field or computer-based work. In experimental and bioinformatic projects, students generate and analyse novel data. In analytical projects, students answer scientific questions through systematic literature reviews, meta-analyses, surveys, and/or new analysis of provided data
	BS3101 Research Project A BS3601 Research Project B	All students must take BS3101 or BS3601	These modules constitute the continuation of experimental/bioinformatic projects, and analytical projects respectively

Sub-section ii: Articulation of plans / intentions for development of Research-Inspired Education beyond the existing provision. *Please capture any future ideas that are not already happening in the box below. This is an optional section and will not be subject to review.*

Expand the GGS research newsletter to be school wide.

Open up selected departmental seminars to undergraduates.

Encourage students to attend professorial inaugural lectures.

[4] If it is not in a core module, this should be embedded in equivalent optional modules that all deliver this aspect of the framework (to ensure all students experience this element of the framework).