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

   BSc Medical Biochemistry C720

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

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 is five years (six years for degrees ‘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 biochemical 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, work in an external research laboratory or an American, Japanese or another European University.

8. **Reference points used to inform the programme specification:**

- QAA Benchmarking Statement
- University of Leicester Learning and Teaching Strategy 2016-2020
- University of Leicester Periodic Developmental Review Report
- External Examiners’ reports (annual)

9. **Programme Outcomes:**
<table>
<thead>
<tr>
<th>Intended Learning Outcomes</th>
<th>Teaching and Learning Methods</th>
<th>How Demonstrated?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(a) Discipline specific knowledge and competencies</strong></td>
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<tr>
<td>(i) Mastery of an appropriate body of knowledge</td>
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<tr>
<td>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 Biochemistry.</td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination, coursework (e.g. practical reports, written reports, data analysis, field reports, oral presentations, group reports, video production, poster production, dissertation)</td>
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<tr>
<td>(ii) Understanding and application of key concepts and techniques</td>
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<tr>
<td>Describe and apply safely appropriate experimental procedures in medical biochemistry and associated biological sciences disciplines. Apply a scientific approach to the solution of problems in medical biochemistry and appreciate the rationale of experimental design. Explain core concepts of their chosen discipline.</td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
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<tr>
<td>(iii) Critical analysis of key issues</td>
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<tr>
<td>Demonstrate a capacity for critical scientific analysis of issues in context of medical biochemistry and associated biological sciences disciplines</td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
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<tr>
<td>(iv) Clear and concise presentation of material</td>
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<tr>
<td>Communicate orally and in writing concepts and arguments in medical biochemistry and associated biological sciences disciplines</td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
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<td>Intended Learning Outcomes</td>
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<tr>
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<tr>
<td>(v) Critical appraisal of evidence with appropriate insight</td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
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<tr>
<td>Demonstrate the capacity to analyse and criticise evidence from both experimental procedures and the literature.</td>
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<tr>
<td>(vi) Other discipline specific competencies</td>
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<tr>
<td>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.</td>
<td>Laboratory work, research project</td>
<td>Research report, practical reports.</td>
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<tr>
<td>(b) Transferable skills</td>
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<tr>
<td>(i) Oral communication</td>
<td>Tutorials, seminars, practical classes, computer classes, discussions, research projects, group work.</td>
<td>Oral presentations, group reports, tutorials.</td>
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<tr>
<td>Communicate orally, with clarity and coherence, concepts and arguments in medical biochemistry and associated biological sciences disciplines</td>
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<tr>
<td>(ii) Written communication</td>
<td>Tutorials, seminars, practical classes, computer classes, discussions, research projects, group work.</td>
<td>Examination and coursework</td>
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<tr>
<td>Communicate in writing, with clarity and coherence, concepts and arguments in medical biochemistry and associated biological sciences disciplines</td>
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<tr>
<td>(iii) Information technology</td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
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<tr>
<td>Demonstrate the effective use of IT for accessing databases and scientific literature; manipulating, processing and presenting data; presenting written assignments.</td>
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<td>Intended Learning Outcomes</td>
<td>Teaching and Learning Methods</td>
<td>How Demonstrated?</td>
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<tr>
<td><strong>(iv) Numeracy</strong></td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
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<tr>
<td>Understand and manipulate numerical data, solve problems using a variety of methods and apply numerical and statistical techniques to data analysis.</td>
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<tr>
<td><strong>(v) Team working</strong></td>
<td>Tutorials, group work, research projects.</td>
<td>Group reports, use of class data to generate practical reports</td>
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<td>Demonstrate the ability to work as part of a group</td>
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<tr>
<td><strong>(vi) Problem solving</strong></td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
</tr>
<tr>
<td>Apply a scientific approach to the solution of problems in the context of medical biochemistry and appreciate the rationale of experimental design.</td>
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<tr>
<td><strong>(vii) Information handling</strong></td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, and private study.</td>
<td>Examination and coursework</td>
</tr>
<tr>
<td>Demonstrate the capacity to access a variety of resource materials and to analyse evidence from both experimental procedures and the literature.</td>
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<tr>
<td><strong>(viii) Skills for lifelong learning</strong></td>
<td>Lectures, tutorials, seminars, practical classes, computer classes, discussions, research projects, group work, directed reading, resource-based learning, private study, career development programme.</td>
<td>Examination, coursework, personal development planning.</td>
</tr>
<tr>
<td>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.</td>
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</table>

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

The programme follows the standard scheme of progression set out in Senate Regulation 5 with the following additional requirements.

The Board of Examiners reserves the right to determine the progression of students who carry failed credits but have the right to a further resit: where these credits are in modules that are pre-requisite for subsequent modules or where the student has a low overall level of attainment, the Board can require the student to resit the failed modules without residence rather than proceed to the next year carrying failed modules to be resat alongside the current modules.

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

11. Scheme of Assessment

The programme follows the standard scheme of award and classification set out in Senate Regulation 5.

12. Special features:

In year 1, students receive a broad education in core bioscience disciplines with a focus on biochemistry and cell biology, along with specific teaching in medical biosciences and key skills. In years 2 and 3, the core programme, including Medical Biochemistry modules specific to them, is supplemented with options from the Biological Sciences programme. 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.

13. Indications of programme quality

External examiner evaluations.

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]

Appendix 1: Programme structure (programme regulations)
Appendix 2: Module specifications

See module specification database http://www.le.ac.uk/sas/courses/documentation

Appendix 3: Skills matrix
Appendix 1: Programme structure (programme regulations)

BSc Medical Biochemistry C720

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

BSc Medical (Biochemistry)

Year 1

Year long modules

- BS1030 The Molecules of Life – An Introduction to Biochemistry and Molecular Biology (30)
- BS1040 The Cell - An Introduction to Microbiology & Cell Biology (30)
- BS1050 From Individuals to Populations - An Introduction to Genetics (15)
- BS1060 Multicellular Organisation - An Introduction to Physiology, Pharmacology and Neuroscience (30)
- MB1080 An Introduction to Medical Bioscience (15)

Year 2

Semester 1

Core modules

- BS2000 Research Topic (15)
- MB2050 Medical Biochemistry (15)

Choose TWO OR THREE modules from:

Semester 1

- BS2092 Molecular and Cell Biology

Semester 2

- BS2093 Protein Control in Cellular Regulation (15)
- BS2040 Bioinformatics (15)

Semester 1

For semester 2, make the credits add up to 60 by choosing from the modules listed below: ¹
BS2009 Genomes (15)
BS2013 Physiology and Pharmacology (15)
BS2015 Physiology of Excitable Cells (15)
BS2030 Principles of Microbiology (15)
MB2020 Medical Microbiology (15)

**Semester total: 60 credits**

**Semester 2**

*Core module*

BS2091 Biochemistry of Nucleic Acids (15)

*For semester 2, make the credits add up to 60 by choosing from the modules listed below:*

- BS2004 Contemporary Techniques in Biological Data Analysis (15)
- BS2014 Exercise Physiology and Pharmacology (15)
- BS2026 Genes, Development & Inheritance (15)
- BS2032 Immunology and Eukaryotic Microbiology (15)
- BS2066 Behavioural Neurobiology (15)
- BS2077 Neurobiology & Animal Behaviour (15)

**Semester total: 60 credits**

*With a Year in Industry (option)*

*Core module:*

BS3400 Year in Industry Research Placement (0) (Year-long)

**Year 3**

**Semester 1**

Research Project: 30/45 credits.

Choose ONE from the following five options:

i) BS3101 Experimental Research Project A (15)** and**
BS3102  Experimental Research Project B (30) (Year-long module)
OR
ii) BS3201  Analytical Research Project (30)
OR
iii) BS3301  Education Research Project A (15) and
BS3302  Education Research Project B (30) (Year-long module)
OR
iv) BS3401  Steered Experimental Research Project (30)
OR
v) BS3501  Field Research Project A (Operation Wallacea) (15) and
BS3102  Experimental Research Project B (30) (Year-long module)

Plus core module:
BS3010  Gene Expression: Molecular Basis & Medical Relevance (15)

Choose TWO OR THREE modules from:

Semester 1
BS3070  Structural Biology (15)

Semester 2
BS3003  Cancer Cell & Molecular Biology (15)
BS3059  Current and Future Therapeutics (15)

Semester 1

For semester 1, make the credits add up to 60 by choosing from the modules listed below:

BS3000  Evolutionary Genetics (15)
BS3015  Molecular and Cellular Immunology (15)
BS3031  Human Genetics (15)
BS3054  Molecular & Cellular Pharmacology (15)
BS3055 Molecular and Cellular Neuroscience
BS3064 Comparative Neurobiology (15)
BS3068 Microbial Biotechnology (15)

Semester total: 60 credits

Semester 2

Core module

MB3001 Biochemical Mechanisms of Human Disease (15)

For semester 2, make the credits add up to 60 by choosing from the modules listed below: ¹

BS3011 Microbial Pathogenesis and Genomics (15)
BS3013 Human and Environmental Microbiomics (15)
BS3016 Neuroscience Futures (15)
BS3018 Genes & Development (15)
BS3033 Physiology, Pharmacology and Behaviour (15)
BS3056 Cellular Physiology of the Cardiovascular System (15)

Semester total: 60 credits

¹ Module selection subject to timetable restrictions.