

**Biological Sciences Modules for Visiting Students 2026/27**



Biological science is the study of life, from single-celled organisms to complex plants and animals. Biological scientists study living organisms to better understand life processes. They also study the ways organisms interact with their environments. The subject covers various areas such as anatomy, cell biology, genetics, microbiology and physiology.

Level 4 modules are introductory in nature, although prior study of biology/chemistry is required whilst level 5 modules are more advanced and do have specific pre-requisites which are listed in each module descriptor.

**Please note that if you wish to take more than one LS\* module from the Biological Sciences modules listed below, then it must be from the same level to ensure that there are no timetable clashes.**

*Updated April 2026/PJW*

**Entry requirements:** GPA of 2.75 or above (out of 4.0) or equivalent.

**Pre-requisites:**

- **Level 4:** prior study of biology/chemistry is required.
- **Level 5:** these modules (typically equivalent to junior-level in the US system, for instance) build upon level 4 courses and as such require prior evidence of successful completion of biology/chemistry at university level. Any further module-specific pre-requisites are clearly outlined in each module summary below.

**Taught at:** Penrhyn Road campus

**KEY TO MODULE DESCRIPTORS**

**SUITABILITY OF MODULE FOR STUDENTS VISITING KU ON STUDY OPTION:**

**1:** Indicates module is suitable for students visiting KU on Study Option 1 (Whole Year)

**2:** Indicates module is suitable for students visiting KU on Study Option 2 (Autumn)

**3:** Indicates module is suitable for students visiting KU on Study Option 3 (Spring)

Study Option 1 = Whole Year  
Study Option 2 = Autumn  
Study Option 3 = Spring

1 **Please note that if you wish to take more than one LS\* module from the Biological Sciences modules listed here, then it must be from the same level to ensure that there are no timetable clashes**

**Notes:**

1. All modules are at undergraduate level.
2. Students enrolled on Study Option 1 are required to study the entire module.
3. whilst the University makes every effort to ensure that this information is correct at the time of updating (April 2026), it cannot accept responsibility for omissions or subsequent changes. Module availability and content may be subject to change, as part of the University's policy of continuous improvement and development.
4. Details of assessment for students enrolled on either Study Option 2 or 3 where provided are **indicative only** and may also be subject to change as part of the above policy.

**Modules:**

MODULE CODE	LEVEL	MODULE TITLE	SUITABILITY <a href="#">KEY</a>
<a href="#">LS4014</a>	4	Genes to Tissues	1, 2, 3
<a href="#">LS4015</a>	4	Introduction to Biochemistry	1, 2, 3
<a href="#">LS4003</a>	4	Scientific and Laboratory Skills	1
<a href="#">LS4016</a>	4	Human Physiology and Anatomy	1, 2, 3
<a href="#">LS5001</a>	5	Molecular Biology of the Cell	1, 2, 3
<a href="#">LS5002</a>	5	Proteins and Metabolism	1, 2, 3
<a href="#">LS5009</a>	5	Pathobiology	1, 2
<a href="#">LS5029</a>	5	Evolutionary Biology, Research Methods and Skills	1, 2

Study Option 1 = Whole Year  
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Study Option 3 = Spring

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**Module Code: LS4014**

**Module Title: Genes to Tissues**

**Credits:**

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

**Level: 4**

**Prerequisites:** study of basic biology

**Suitability:**

- Study Abroad/International Exchange students for Study Options 1, 2 or 3
- Not open to Erasmus students, as level 4 (unless home institution agrees)

**Content:**

This module introduces students to the biology of cells; molecular, evolutionary and population genetics; biodiversity; tissue types in the human body; and an introduction to bacteria, viruses and other disease-causing pathogens.

LS4014 provides a solid foundation for more advanced that expand knowledge in cell biology, anatomy, physiology, genetics and microbiology.

Laboratory practicals give students the opportunity to learn and demonstrate a selection of current techniques used to study cells, tissues, chromosomes and microbes.

➤ **Autumn Semester topics: *Cell structure and organelles; Molecular genetics; Population genetics; Introduction to microbiology***

- Cell Membranes
- Practical 1 (Microscopy) - basic preparative techniques for examination of biological specimens by light microscopy and correct use of light microscopes
- Cell Organelles - prokaryotic and eukaryotic cells
- a review of the genetic processes in cells including DNA structure, replication, transcription and translation
- an introduction to patterns of inheritance, Mendelian genetics, population and evolutionary genetics, basic calculations in inheritance and population genetics
- an introduction to genetic recombination and mapping
- an introduction to cytogenetics
- Practical 2 (Cytogenetics)
- Bacteria
- Viruses

➤ **Spring Semester topics: *Eukaryotes of medical importance, Biodiversity, Introduction to Evolution,***

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***Histology, Molecular techniques in action***

- Practical 3 (Microbiology): Chromosomes and Gene Expression
- an introduction to modern molecular techniques including cloning, recombinant DNA technology and DNA analysis
- an introduction to early human development (Histology)
- structural and functional characteristics of epithelium, connective tissues, muscle and nervous tissues and their subtypes
- Practical 4 Histology
- Biodiversity
- an introduction to viruses, bacteria and microbial eukaryotes of medical importance
- basic microbiological techniques
- stem cell biology

**Teaching:** weekly 2-hour lectures and 4 three-hour practical sessions

**Assessment:**

➤ Study Option 1:

- practical test 1 & 2- Microscopy & Cytogenetics – 15 MCQ (multiple choice questions) (10%)
- 1-hour online MCQ test – Autumn (30%)
- Online practical test 3 & 4 - Chromosomes and Gene Regulation & Histology 15 MCQ questions) (10%)
- Light Microscopy skills assessment (10%)
- 2-hour end of year exam (MCQ and written short answer questions) (40%)

➤ Study Option 2:

- 1-hour online MCQ test – Autumn (75%)
- practical test 1 & 2- Microscopy & Cytogenetics – 15 MCQ (multiple choice questions) (25%)

➤ Study Option 3:

- Version of study option 1 assessment (100%)

***Note: methods of assessment and weighting are indicative only and maybe subject to change***

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Study Option 1 = Whole Year  
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Study Option 3 = Spring

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Module Code: LS4015

Module Title: Introduction to Biochemistry

**Credits:**

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

Level: 4

Prerequisites: study of basic chemistry

**Suitability:**

- Study Options 1, 2 & 3
- Not open to Erasmus students, as level 4 (unless home institution agrees)

**Content:**

This is a key introductory module for students studying biochemistry, biological sciences and pharmacology. It provides an understanding of how basic chemical elements are bonded to form complex biomolecules in living systems. This module explores the role and structure of proteins, carbohydrates and lipids and delves into defining their properties and functions. The module will also introduce the vital role of energy transformations in living organisms.

➤ **Autumn Semester topics:**

- **Atoms and chemical bonding:** structure of the atom, electronegativity, resonance effects, bonding within molecules (covalent) and between molecules (ionic, hydrogen, van der Waals).
- **Moles, concentrations and dilutions:** molecular mass, the concept of the mole, calculating concentrations of solutions and dilutions.
- **Building blocks for biomolecules:** structure of simple molecules, small carbon to large biomolecules, identification and naming of common functional groups.
- **Giving biomolecules shape:** 3D biomolecular shapes and isomerism, configuration and conformations.
- **Reactivity of the carbonyl group**
- **The aqueous environment:** water, acids, bases, pH, pKa and buffers
- **Introduction to Bioanalytical methods:** basic techniques including mass spectroscopy, separation techniques.
- **Laboratory skills:** titrations, qualitative biochemical analysis, reaction rates, use of standard curves in quantitating unknown analytes.

➤ **Spring Semester topics: *Introduction to Biomolecules, Metabolism & Energy Transformations***

- **Introduction to the Biomolecules; Proteins and enzymes:** amino acids, peptides and protein structure and function, enzyme kinetics ( $K_m$ ,  $V_{max}$ , competitive and noncompetitive inhibitors);
- **Introduction to Carbohydrates:** mono-, di- and polysaccharides, structure and functions;
- **Introduction to Lipids:** fatty acids, triacylglycerols, structural lipids

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Study Option 3 = Spring

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- **Metabolism and energy transformations:** basic biochemical reactions, metabolic pathways and energy transformations
- **Laboratory skills:** titrations, qualitative biochemical analysis, reaction rates, use of standard curves in quantitating unknown analytes.

**Teaching:** weekly 2-hour lectures/workshops and periodic 3-hour practical sessions

**Assessment:**

➤ **Study Option 1:**

- 2-hour online open book MCQ test – Autumn content (40%)
- Written practical report on data handling and processing online test (30%)
- Portfolio of three small MCQ tests – Spring content (30%)

➤ **Study Option 2:**

- 2-hour online open book MCQ test (100%)

➤ **Study Option 3:**

- Portfolio including three MCQ tests

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**Module Code:** LS4003

**Module Title:** Scientific and Laboratory Skills

**Credits:**

- Full Year: 8 (US) 15 (ECTS)

**Level:** 4

**Prerequisites:** none

**Suitability:**

- Study Option 1 only
- Not open to Erasmus students, as level 4 (unless home institution agrees)

**Content:**

This module provides a firm foundation in general scientific and laboratory skills. Students are introduced to the nature of studying in higher education and the key skills they will need in developing their professional

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development portfolio in the biosciences. Scientific analytical and lab/practical skills are developed, together with essential mathematics and statistical skills for life scientists. A significant component of the module consists of the development of basic research skills such as practical skills in the laboratory, the principles of experimental design and the statistical analysis of data.

➤ **Generic study skills:**

- Time management and planning – use of university information systems; planning and time management of work; planning revision.
- Independent study – Learning Resource Centre (LRC) resources, research databases, and independent reading. Use of reference sources.
- Teamworking, communication, responding to feedback and reflective skills.
- Awareness of employment opportunities, career information sources and events, and identification of relevant key skills developed during the year.
- Exam preparation, revision and technique.

➤ **Maths, Computing and Data Presentation:**

- Foundation mathematics and information technology for the biosciences; accuracy; standard powers of 10; scientific notation.
- Probability, concentrations and dilutions, rates of reaction
- Mathematical models in the biosciences; exponential growth/decay and transformation of data, including logarithms
- Use of spreadsheets for graph plotting and interpretation, model simulation
- Scientific communication
- Referencing, plagiarism and collusion Identifying appropriate research literature sources, use of information technology and the internet.

➤ **Experimental design, basic statistics and SPSS:**

- Asking questions and developing hypotheses.
- Understand the design of basic experiments (e.g. variation, sampling and the need for replication; randomisation and blocking).
- Introduction to statistical software.
- Statistical tests: types of data and the normal distribution, descriptive statistics, t-tests, correlation.

➤ **Laboratory skills:**

- Introduction to COSHH regulations and good laboratory practice.
- Molar calculations, dilutions and conversion of units
- Precision and accuracy in the laboratory.
- Colorimetry – Beer-Lambert's Law.
- Safe handling of microorganisms.
- Basic separation techniques.
- Enzyme-catalysed reaction rates.

**Teaching:** lectures, workshops/seminars, tutorials and practicals

Study Option 1 = Whole Year  
Study Option 2 = Autumn  
Study Option 3 = Spring

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**Assessment:**

Study Option 1:

- End of year laboratory practical exam (50%)
- Professional development portfolio (20%)
- Portfolio of on-line tests which contains 6 math/statistics test, each contributing 5% (30%)

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**Module Code: LS4016**

**Module Title: Human Physiology**

**Credits:**

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

**Level: 4**

**Prerequisites:**

- basic study of biology
- For study option 3, knowledge key organs & systems in physiology is required

**Suitability:**

- Study Options 1, 2, 3
- Not open to Erasmus students, as level 4 (unless home institution agrees)

**Content:**

This module provides students with a dynamic exploration of how human physiology and anatomy work together to underpin health, movement, and physical performance. Students will investigate how key physiological systems like the cardiovascular, muscular, and nervous systems work together, while exploring the principles of biomechanics to understand how the body moves and adapts to homeostatic challenges.

Through hands-on labs and workshops, students will develop practical skills in data collection, experimental design, and analysis, learning how to measure and evaluate human performance. By the end of this module, students will have a solid grasp of how human physiology and anatomy are studied and how they relate to broader issues like sustainability and human health.

➤ **Autumn Semester topics:**

Study Option 1 = Whole Year  
Study Option 2 = Autumn  
Study Option 3 = Spring

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This semester is focused basic concepts and key organs & systems in physiology.

- **Defining Physiology and Anatomy** - Explore the essential principles that define how the body functions, focusing on the processes that maintain life, homeostasis, cellular communication and transport, and signal transduction pathways
- **Basic concepts in Pharmacology** - at its core, pharmacology is about how drugs influence the body—and that begins with understanding how they interact with biological targets. This topic introduces the fundamental concept of ligand–receptor relationships, including how drugs can mimic (agonists) or block (antagonists) the actions of natural molecules. By exploring these basic interactions, students will begin to connect how pharmacological agents can modify physiological processes, laying the groundwork for more advanced study in drug action and therapeutic use.
- **Introduction to Neurophysiology and the Nervous System** - Neurophysiology covers the ways in which nervous tissue enables rapid communication across long distances in the body. The interaction between neurons underpins almost every function, from essential processes like breathing and heartbeat regulation to complex behaviours such as learning and memory. In this topic, students will explore how nerve cells generate and transmit signals, and how these signals coordinate body functions. Another key focus will be the autonomic nervous system (ANS), which controls involuntary functions through its sympathetic and parasympathetic branches. This knowledge lays the foundation for exploring how the nervous system maintains homeostasis and responds to internal and external stimuli, and the body's response to drugs and disease.
- **Respiratory Physiology** - Organisation of the respiratory system; ventilation, exchange of gases in alveoli and tissues; transport of oxygen and carbon dioxide in blood, control of respiration; hypoxia; selected examples of disorders of the respiratory system.
- **Cardiovascular Physiology:** will include structure and function of the heart, circulation, electrical conduction of heart, action potential generation, excitation contraction coupling in cardiac muscle cells and vascular smooth muscle cells, control of cardiac output, cardiac cycle, blood vessels, hemodynamics, control of blood pressure and blood flow, and capillary fluid exchange.
- **Endocrine Physiology:** Hormone structure and synthesis, hormone transport in the blood, mechanisms of hormone action, and control of hormone secretion will be covered in this unit. The hypothalamic-pituitary axis; the posterior pituitary, thyroid hormones, pancreatic hormones, hormones secreted by the adrenal gland will also be introduced. Selected examples of pathophysiology of endocrine system will be presented.
- **Immune system** is the body's defence network, protecting us from infections, clearing damaged cells, and helping maintain internal balance. This topic introduces the key components and principles of immune function. Students will explore how the innate and adaptive immune branches of the immune system work together to detect and respond to microbial threats or tissue trauma, and how immune responses are tightly regulated to avoid damage to the body's own tissues. A solid understanding of these basic concepts is essential for recognising how the immune system contributes to health—and what happens when it goes wrong.

**Spring Semester topics:**

This semester builds upon knowledge from the autumn semester, introduces additional topics and systems, and provides more hands-on practical and workshop sessions.

- **Neurophysiology** - structure and classification of neurons; membrane potentials, the resting potential, graded potentials and action potentials; synapses, excitatory and inhibitory chemical synapses; neurotransmitters and neuromodulators; modification of synaptic transmission; selected examples of neuropathology.
- **Gastrointestinal Physiology** - Digestion and absorption of carbohydrate, protein, fat, vitamins, minerals, and water; regulation of secretion and motility of the gastrointestinal tract; selected examples of pathology of the gastrointestinal system.
- **Muscle Physiology** - Muscles in the body allow movement as well as contributing to a number of other physiological processes. The physiology, structure and function of two types of muscle (skeletal muscle and smooth muscle) will be covered, as well as the metabolism of skeletal muscle and how movement is controlled.

**Teaching:** weekly 2-hour lectures and periodic 3-hour practical sessions

**Assessment:**

➤ Study Option 1:

- 2-hour end of year exam (40%)
- Online practical MCQ test (40%)
- 2 x coursework assignments (20%)

➤ Study Option 2:

- Online practical MCQ test (80%)
- Written coursework (20%)

➤ Study Option 3:

- Exam (33%)
- Practical MCQ test (33%)
- Written coursework (33%)

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Study Option 1 = Whole Year  
Study Option 2 = Autumn  
Study Option 3 = Spring

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<b>Module Code: LS5001</b>
<b>Module Title: Molecular Biology of the Cell</b>
<ul style="list-style-type: none"> <li>• Full Year: 8 (US) 15 (ECTS)</li> <li>• Single Semester: 4 (US) 7.5 (ECTS)</li> </ul>
<b>Level: 5</b>
<b>Prerequisites:</b> introductory university-level study of cell biology such as <a href="#">LS4001</a> or similar
<b>Suitability:</b> Study Options 1, 2, 3
<p><b>Content:</b></p> <p>The module builds on topics covered in <a href="#">LS4014 (Genes to Tissues)</a> or similar and explores more advanced concepts in cell and molecular biology. The module provides insight into the structure and function of cells, and takes an integrated approach to looking at how cells respond to changes in their environment – from receptor interactions and intracellular signalling pathways through to the regulation of gene expression and changes in cellular processes.</p> <p>➤ <b>Autumn Semester: Cell Biology and Cell Signalling</b></p> <ul style="list-style-type: none"> <li>• an overview of cellular and molecular processes in the cell</li> <li>• cell structure, adhesion and motility</li> <li>• intracellular trafficking and molecular motors</li> <li>• cell cycle and cell death</li> <li>• an introduction to receptor activation and intracellular signalling pathways</li> <li>• MAPK signalling</li> <li>• PKC and NF-κB signalling</li> <li>• Western blot</li> </ul> <p>➤ <b>Spring Semester: Molecular Biology</b></p> <ul style="list-style-type: none"> <li>• DNA packaging, chromatin modification and epigenetic regulation</li> <li>• DNA packaging, chromatin modification and epigenetic regulation</li> <li>• transcription and post-transcriptional processing</li> <li>• translation and the regulation of gene expression</li> <li>• mutation and the genetic code</li> <li>• practical methods relevant to cell and molecular biology, for example fluorescence microscopy, RT-PCR</li> </ul>
<b>Teaching:</b> Lectures, tutorials, workshops and practical sessions/demonstrations

**Assessment:**

➤ Study Option 1:

- Cell biology data analysis MCQ test, 90 mins, 35 questions (30%)
- Gene expression MCQ test (30%)
- End of year exam (40%)

➤ Study Option 2:

- Online 60 mins exam essay (50%)
- Cell biology data analysis MCQ test, 90 mins, 35 questions (50%)

➤ Study Option 3:

- 1.5-hour online MCQ test - transcriptional regulation and gene expression (50%)
- Online exam - covering translation and genetic code (50%)

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**Module Code:** LS5002

**Module Title:** Proteins and Metabolism

**Credits:**

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

**Level:** 5

**Prerequisites:** study of introductory biomolecules at university level such as [LS4002](#) or similar.

**Suitability:** Study Options 1, 2 & 3

**Content:**

The module provides students with knowledge of the structure and methods of analysis of proteins, with particular emphasis on enzymes. This is followed by the study of the major catabolic and anabolic pathways and investigates how organisms obtain and use energy. These processes, and their regulation in health and disease, are considered at the molecular level, which involves many proteins including enzymes.

➤ **Autumn Semester: *Protein Structure, Function and Analysis***

- **Amino Acids** - Revision of basic structure and chemical properties. Structure of side chains.

Study Option 1 = Whole Year  
Study Option 2 = Autumn  
Study Option 3 = Spring

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- **Protein Structure** - Structure and properties of the peptide bond, levels of protein structure relating to primary structure and function of proteins. Methods of protein structure determination.
- **Enzymes** - Structural features of enzymes relating to function. Measurement of enzyme activity, including calculation of kinetic parameters and enzyme inhibition.
- **Protein Purification Techniques:** Ultracentrifugation, chromatography, electrophoresis as applied to the purification of proteins.
- **Bioenergetics & Oxidative Phosphorylation:** Free energy changes, reduction potentials, coupled reactions and electron transport. Organisation of the inner mitochondrial membrane and its relationship to the chemiosmotic theory.

➤ **Spring Semester: *Metabolism***

- **Carbohydrate Metabolism:** Integration and regulation of glycolysis/ gluconeogenesis, glycogen metabolism, pentose phosphate pathway and the citric acid cycle.
- **Amino Acid Metabolism:** Integration and regulation of amino acid metabolism.
- **Lipid & Cholesterol Metabolism:** Integration and regulation of  $\beta$ -oxidation, ketone body metabolism, fatty acid synthesis, triglyceride metabolism and cholesterol synthesis. Classification and roles of serum lipoproteins.

**Teaching:** weekly lectures, workshops and practicals

**Assessment:**

➤ **Study Option 1:**

- Enzymes, Protein Structure and Protein Purification Workbook 1 (30%)
- Metabolism Workbook 2 (40%)
- Practical portfolio (30%)

**Study Option 2:**

- Practical 1
- Practical 2
- Workbook 1

**Study Option 3:**

- TBC

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Study Option 1 = Whole Year  
Study Option 2 = Autumn  
Study Option 3 = Spring

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<b>Module Code:</b> LS5009
<b>Module Title:</b> Pathobiology
<b>Credits:</b> <ul style="list-style-type: none"> <li>• Full Year: 8 (US) 15 (ECTS)</li> <li>• Single Semester: 4 (US) 7.5 (ECTS)</li> </ul>
<b>Level:</b> 5
<b>Prerequisites:</b> university-level study of biological sciences
<b>Suitability:</b> Study Options 1 or 2
<b>Content:</b> <p>The module discusses cellular mechanisms of disease. In addition, it considers the role of cellular pathology in the context of other pathology disciplines such as clinical pathology. Particular emphasis is given to laboratory aspects of cellular injury and their application in routine diagnosis.</p> <p>➤ <b>Autumn Semester Topics*:</b></p> <ul style="list-style-type: none"> <li>• Pathogenesis of cell injury: Morphological features of cell injury, acute cellular oedema, fatty change, storage diseases, necrosis and apoptosis. Genetic and acquired disease.</li> <li>• Neoplasia - general introduction and epidemiology of cancer; nature and classification of cancer</li> <li>• Definition of epidemiology, its role in public health, application of basic statistical methods in it</li> <li>• Inflammation: its roles; components of acute &amp; chronic inflammation; local inflammatory response</li> <li>• Genetics: molecular pathology and precision medicine, and how the effects that genetic variants have on disease are categorised. Gene therapy and gene editing. Ethical issues in genetics.</li> </ul> <p>➤ <b>Spring Semester Topics*:</b></p> <ul style="list-style-type: none"> <li>• Review of histological and cytological methods, including sources and types of specimen, tissue treatments and processing and staining. Applications of microscopes in disease diagnosis (such as light, fluorescence and electron microscopy).</li> <li>• Cytopathology - diagnoses of disease on the cellular level; cervical cancer</li> <li>• Infertility and IVF: causes and treatments</li> <li>• Histochemistry and immunocytochemistry and its use in diagnostic pathology.</li> <li>• Image capture, image processing and image analysis techniques and their use in cellular pathology including quantification and histomorphometry.</li> </ul> <p><i>Note: some topics may swap semesters.</i></p>
<b>Teaching:</b> weekly 2-hour lectures and 3-hour practical sessions
<b>Assessment:</b> <p>➤ <b>Study Option 1:</b></p> <ul style="list-style-type: none"> <li>• End of year exam (50%)</li> </ul>

Study Option 1 = Whole Year  
 Study Option 2 = Autumn  
 Study Option 3 = Spring

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- Online practical test – breast cancer (25%)
  - Poster presentation (25%)
- **Study Option 2:**
- Online MCQ test, 90 mins, 35 questions (50%)
  - Poster assignment (25%)
  - Practical 1 online test (25%)

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**Module Code:** LS5029

**Module Title:** Evolutionary Biology, Research Methods and Skills

**Credits:**

- Full Year: 8 (US) 15 (ECTS)
- Single Semester: 4 (US) 7.5 (ECTS)

**Level:** 5

**Prerequisites:** university-level study of biology/biological sciences

**Suitability:** Study Options 1 or 2

**Content:**

The first half of this module (autumn semester) half explores biodiversity on our planet and investigates the genetic processes that create this variation. Through real-world examples and computer-based workshops, students will examine both historical and ongoing evolution.

The second part broadens the scope to encompass the wider aspects of the biological sciences and beyond. It focuses on developing students' Future Skills by engaging them with Explore, enhancing their research, problem-solving, and critical thinking abilities. This is further supported by tutor meetings, which help students work on tasks to develop, articulate, and reflect on their progress and graduate attributes.

➤ **Autumn Semester: *Evolutionary Biology***

- Concepts in biodiversity
- Genetic processes which underpin evolutionary processes
- Natural selection and adaptation
- Sexual selection
- Speciation and extinction
- Co-evolution

Study Option 1 = Whole Year  
Study Option 2 = Autumn  
Study Option 3 = Spring

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- Human evolution
- Applications of molecular evolution to solve real-world problems

➤ **Spring Semester: *Research Methods and Skills***

❖ **Research Methods**

- The use & selection of different problem-solving approaches as exemplified by design thinking and scientific method to determine outcomes, develop graduate attributes and decision-making skills from findings/outputs
- Experimental design, hypothesis testing, data management & exploration, data analysis and visualisation.
- Assimilation, synthesis, and critical evaluation from research papers, literature reviews, databases and other appropriate sources of information such as that generated through artificial intelligence
- Scientific communication, evaluation, and presentation including for example through written reports, posters, oral presentations that includes the relevant citation of sources/references
- The impact of ethical, sustainable, and societal issues in specified discipline.

❖ **Employment Skills**

- How to research, identify and access employment opportunities, career information sources, networking opportunities and events for your discipline.
- Teamworking, communication and application of collaborative interdisciplinary learning in scientific problem-solving
- Reflection and critical self-evaluation skills
- Project planning and management
- Equity, diversity, and inclusion in collaborative contexts (including understanding values, motivations, and different perspectives)

**Teaching:** weekly 2-hour lectures and two 3-hour computing workshops

**Assessment**

➤ **Study Option 1:**

- Evolution project (50%)
- Individual report involving the analysis and presentation of an evolutionary biology question with reflective account (approx. 1,500 words) (30%) and data analysis test (20%). Format: infographic, poster, podcast or video. (50%)

➤ **Study Option 2:**

- Evolution project (100%)

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Study Option 2 = Autumn  
Study Option 3 = Spring

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