



Bsc (Hons) in BIOLOGICAL SCIENCES

in partnership with:



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WELCOME!

Dear Student,

This Handbook is intended to provide a concise reference and guide for all Anatolia American University – U.L.E. (AAU) students. Included herein are brief statements of university’s policies applicable to and of interest to all university constituencies.

This guide is intended to address some of the common academic and student life questions and concerns that are likely to arise during your years at AAU. Its purpose is not merely to lay out the policies of academic life, but also to point out ways of thinking about your education. Planning carefully and looking ahead will enable you to maximize your opportunities at the University. Knowing when and where to find guidance and counsel is important in ensuring that your educational choices are well-considered and make sense in the context of your larger academic goals.

We do assume, however, that you will seek out the help you need. This guide has been designed to help you do just that. Please read it, keep it, and use it as a reference throughout your academic career.

With best regards,

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AAU Provost

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3. NAME, POSITION AND INSTITUTION OF THE EXTERNAL EXAMINER(S) INVOLVED IN THE PROGRAMME

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4. INTRODUCTION TO THE PROGRAMME

The BSc Hons in Biological Sciences is a degree programme within the School of Science and Technology. This is a modern interdisciplinary biological sciences program with biomedical, computational, ecological, and biotechnology dimensions.

In response to global challenges such as climate change and environmental management, population growth and food security, and advances in biotechnology and human health, the biological sciences play an increasingly important role. Ongoing developments in the field continue to expand understanding and contribute to solutions with significant societal impact.

The degree provides a comprehensive foundation in biological sciences across molecular, biochemical, cellular, organismal, and ecological levels. It equips graduates with practical laboratory experience and research skills that support progression to advanced post-graduate study and a wide range of employment opportunities.

A key strength of the programme is its breadth, reflecting the interdisciplinary nature of modern biology. Students apply the scientific method through the design and execution of experimental investigations, data analysis and interpretation, and the communication of findings through scientific writing, alongside the critical evaluation of relevant literature.

A further strength lies in the programme's elective structure at Levels 5 and 6, which allows students to concentrate their studies in areas aligned with their personal interests and career aspirations, such as biotechnology and drug design, microbiology and public health, applied ecology and conservation, or neuroscience, while maintaining coherence within the overall programme structure.

In addition, the programme prepares students for further study and/or employment in the following areas:

1. Research and Scientific Investigation

- Biomedical research and reporting
- Public and private sector research
- Postgraduate research training
- Analytical and diagnostic sciences

2. Health and Clinical Professions

- Dentistry
- Veterinary medicine
- Health prevention and promotion
- Microbiology and infectious diseases
- Neuroscience

3. Environmental and Ecological Sciences

- Applied Ecology and Conservation
- Environmental monitoring and assessment
- Biodiversity conservation and management

4. Education and Communication

- Biological and health education

- Science communication

5. Health Systems, Policy, and Data

- Health policy, advisory, and related professions
- Health informatics and bioinformatics

6. Industry and Applied Sciences

- Pharmaceutical industry
- Cosmetic science and industry
- Food Industry

Programme Learning Outcomes (PLOs)

- A. Knowledge and Understanding
- B. Cognitive Skills
- C. Practical and Professional Skills
- D. Key/Transferable Skills

All Biological Sciences students take the modules Thesis I and II during their senior year.

5. PROGRAMME SPECIFICATION

The BSc (Hons) in Biological Sciences at AAU, offered by the AAU School of Science and Technology, is a contemporary interdisciplinary programme designed to reflect the complexity and evolving nature of modern biological sciences. The curriculum integrates biomedical sciences,

biotechnology, ecology, and computational biology, providing students with a broad scientific foundation alongside opportunities for academic specialisation and independent study.

The programme is based on the principle that contemporary biology is increasingly shaped by advances in data science, computational methods, and translational research. It therefore combines rigorous scientific training with curricular flexibility, enabling students to develop both disciplinary breadth and subject-specific depth in line with their academic and professional interests.

Core Educational Principles

The curriculum is structured around four foundational principles:

1. Scientific Rigor: The programme develops a comprehensive understanding of biological systems across multiple levels of organisation, from molecular and cellular processes to organismal physiology, ecosystems, and public health.
2. Student Autonomy: The programme supports personalised academic development through a structured elective framework, enabling students to explore areas of emerging scientific interest and align their studies with postgraduate or professional aspirations.
3. Technological Literacy: Students are introduced to bioinformatics, computational tools, data analysis techniques, and selected applications of artificial intelligence relevant to contemporary biological and biomedical sciences.
4. Practical Mastery: Laboratory-based teaching and experiential learning are embedded throughout the curriculum to support the development of practical scientific competencies and research skills.

Curriculum Structure and Thematic Areas

The Biological Sciences curriculum consists of four module levels: Enhancement, Level 4, Level 5 and Level 6. To obtain the degree, students are required to complete 37 modules, including enhancement modules and free electives. During the final three (3) academic terms, students may participate in the Internship module PRAC 300. The undergraduate thesis is completed during the final year of study.

Following completion of Level 4 foundational study, students may tailor their academic profile through elective modules at Levels 5 and 6. These electives enable students to develop subject-specific interests while maintaining coherence within the overall programme structure.

Indicative thematic areas include:

- Biotechnology and Drug design
- Microbiology, Infectious Diseases and Public Health
- Applied Ecology and Conservation
- Neuroscience

These thematic areas do not constitute formal pathways but provide an indicative framework for academic development. Academic guidance is provided to support appropriate module selection and ensure progression in line with programme requirements and prerequisites.

Practical and Research-Informed Learning

The programme places significant emphasis on practical and research-informed learning. Laboratory teaching is embedded throughout the curriculum, with a substantial number of modules including a distinct, timetabled laboratory component, while several additional modules incorporate integrated laboratory activities within their overall teaching delivery. These provide opportunities for students to develop competencies in experimental design, scientific observation, data analysis, and interpretation of experimental results.

Students have access to specialist teaching facilities, including laboratories in chemistry, biology, organic chemistry, and physics, as well as computer laboratories supporting computational biology and data analysis.

The programme culminates in a Level 6 independent research project (Thesis), undertaken under academic supervision. This provides students with the opportunity to apply research methodologies and integrate knowledge acquired throughout the programme within a focused area of biological sciences.

In addition, students may undertake an optional Level 6 internship (Practicum 300), subject to availability and programme regulations. This provides experience within professional or research environments relevant to the biological sciences and supports the development of employability-related skills.

Graduate Attributes and Career Destinations

Upon completion of the programme, graduates will have developed a broad and integrated understanding of biological sciences, including genetics, biochemistry, molecular biology, microbiology, immunology, physiology, epidemiology, and environmental sciences. In addition to subject knowledge, the programme aims to develop critical thinking, scientific reasoning, independent learning, and analytical skills, supporting lifelong learning and adaptability in a range of professional contexts.

Graduates may be suitable for progression to employment or further study in areas such as:

- Biomedical and laboratory research
- Biotechnology and pharmaceutical development
- Clinical diagnostics and healthcare sciences
- Public health and epidemiology
- Bioinformatics and computational biology
- Environmental and conservation sciences
- Science communication and education
- Postgraduate study and research training programmes

Campus

It should be noted that AAU graduates complete their higher education within the AAU campus, which provides an international learning environment supported by high-quality academic services, facilities, and learning resources available to all students.

PROGRAMME OF STUDY AND INTENDED LEARNING OUTCOMES

Enhancement modules

These modules ensure that students receive a well-rounded, skills-based education and may also include modules that enhance knowledge and skills in their subject area. Employers look for candidates who can analyze information, collaborate and adapt. The Enhancement modules equip students with highly desirable skills that maximize their learning experience and enhance both personal and professional growth, preparing them to navigate an ever-changing world. As part of their co-curricular studies, students, students are expected to master foundational skills that:

Develop Critical Skills: The Enhancement modules build essential skills like critical thinking, communication, problem-solving, and analytical reasoning.

Encourage Interdisciplinary Thinking: By taking modules in sciences, humanities, and social sciences, students learn how different fields connect, making them more adaptable and innovative thinkers.

Boost Career Readiness: Employers look for well-rounded candidates who can analyze information, collaborate, and adapt—skills reinforced through general education modules.

Promote Lifelong Learning: These modules expose students to new subjects they might not have explored otherwise, helping them become more curious and engaged learners.

Indicative list (not limited to) of the Enhancement modules, including free electives:

- o Anatomy and Physiology 116: Integrated Human Anatomy and Physiology II
- o Biology 299: Research Methods in the Biological Sciences
- o Biology 400: Integrative Biology Seminar
- o Philosophy 310: Bioethics
- o Physics 120: University Physics I for Science and Engineering
- o English 101: Composition I
- o Art 130: Introduction to Photography, from the analog to digital era
- o Economics 101: Introductory Macroeconomics

Programme Structure - ENHANCEMENT MODULES				
Compulsory modules	Credit points		Is module compensatable?	Semester runs in
Politics 101 - Contemporary Politics	15		n/a	Varies by students' cohort entrance (Fall or Spring)
History 120 - The Modern World	15		n/a	
English 102 - Composition II	15		n/a	
Computer Science 101 - Digital Literacy	15		n/a	
English 204 - Business/Professional Communication	15		n/a	
Philosophy 101 - Introduction to Philosophy and Critical Reasoning	15		n/a	
Psychology 101 - Introduction to Psychology	15		n/a	
Mathematics 120 - Calculus I for Science and Engineering	15		n/a	

Intended learning outcomes for Enhancement modules are listed below:

Learning outcomes – Enhancement Modules	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
A1 Develop an awareness of foundational concepts, key theories, and terminology in relevant subject areas (including mathematics, digital technologies, humanities, and social sciences). A2 Acquire an understanding of how people think, learn and behave, and how societies organize and govern themselves.	<u>Learning and teaching strategy</u> Engage students in close reading, class discussions and group work; utilise a variety of audiovisual resources (videos, films, new media, websites). <u>Assessment methods</u> • Written exams and quizzes on core subject matter. • Short-answer or essay assignments evaluating conceptual understanding. • Reading comprehension tests.
3B. Cognitive Skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
B1 Interpret information, data and arguments critically, drawing on both quantitative and qualitative reasoning. B2 Evaluate different perspectives, theories, or solutions and make informed judgements.	<u>Learning and teaching strategy</u> Lectures, student led activities and group work, workshops, discussion groups <u>Assessment methods</u>

	- Analytical essays and case study write-ups. - Comparative reviews of scholarly texts. - Structured debates or panel discussions
3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
C1 Build skills to assess and use a basic set of digital tools (e.g., word processing, spreadsheets, research databases) for academic, research, or professional projects. C2 Acquire skills to follow discipline-specific procedures (e.g., mathematical modeling, experimental methods, information retrieval) and apply them in practical contexts. C3 Develop an ability to produce well-organized, professional-quality communications (written, oral, visual).	<u>Learning and teaching strategy</u> Individual and group projects, class discussions, class presentations, participation in events organised by the School. <u>Assessment methods</u> - Computer-based assignments, simulations, or projects. - Oral presentations and role-play scenarios. - Business communications such as memos, reports, or emails.
<u>3D. Key/transferable skills</u>	
Learning outcomes:	Learning and teaching strategy/ assessment methods
D1 Plan and review study plans while collaborating effectively in diverse teams, showing adaptability and interpersonal communication. D2 Comprehend and communicate ideas clearly in both writing and speaking, tailoring language for academic, professional, and interdisciplinary audiences.	<u>Learning and teaching strategy</u> Systematic use of information literacy, group discussions, research tasks, oral presentations, workshops.

D3 Demonstrate an understanding of the role of professional bodies and lifelong learning strategies, self-reflection, and adaptability to new challenges.	<u>Assessment methods</u> • Group projects and/or peer evaluations. • Reflective journals and portfolios documenting skill development. • Presentations targeting diverse audiences. • Feedback from team-based activities or collaborative assignments.
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Programme Structure - LEVEL 4				
Compulsory modules	Credit points		Is module compensatable?	Semester runs in
Biology 112 - Principles of Biology	20		n/a	Varies by students' cohort entrance (Fall or Spring)
Biology 113 - Ecology and Evolutionary Biology	20		n/a	
Chemistry 117 - Chemistry for Biological Sciences	20		n/a	
Anatomy and Physiology 115 - Integrated Human Anatomy and Physiology I	20		n/a	
Biology 201 - Foundations of Microbiology	20		n/a	
Chemistry 215 - Organic Chemistry I	20		n/a	

Intended learning outcomes at Level 4 are listed below:

Learning Outcomes – LEVEL 4	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
A1 Demonstrate knowledge and understanding of key biological concepts and processes from molecular, cellular, and organismal levels. A2 Describe and use appropriate biological terminology, nomenclature, and classification systems. A3 Explain basic biological phenomena using principles from related disciplines, including chemistry, microbiology, and physiology. A4 Demonstrate understanding of fundamental chemical principles relevant to biological systems, including basic concepts of organic chemistry. A5 Demonstrate knowledge and understanding of basic principles of microbiology, including microbial structure, diversity, and function.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3B. Cognitive skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
B1 Identify, describe, and compare biological information from a range of scientific sources. B2 Collect, record, and organise biological data using appropriate laboratory and/or field techniques. B3 Explain the role of evolution as a unifying principle in the biological sciences.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
C1 Demonstrate competence in basic laboratory techniques in biology, microbiology, and chemistry (including introductory organic chemistry). C2 Formulate simple, testable biological or biochemical hypotheses. C3 Perform basic data handling and produce structured laboratory or field reports.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Tutorials, Laboratory classes, Fieldwork • E-learning and Blended Learning: Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
D1 Demonstrate awareness of skills relevant to academic study and future employability, including teamwork and independent learning. D2 Apply appropriate academic conventions, including referencing and avoidance of plagiarism. D3 Communicate biological scientific information effectively in written and oral formats, demonstrating appropriate use of academic language, structure, and scientific conventions.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

Programme Structure - LEVEL 5				
Compulsory modules	Credit points		Is module compensatable?	Semester runs in
Statistics 211 - Biostatistics with R	15		n/a	Varies by students' cohort entrance (Fall or Spring)
Biology 230 - Genetics and Molecular Biology	20		n/a	
Biology 310 - Bioinformatics and Computational Biology	15		n/a	
Biology 320 - Biochemistry	20		n/a	
Biology 330 - Cell Biology and Histology	20		n/a	
Major Elective	15		n/a	
Major Elective	15		n/a	

Programme Structure – Level 5 Elective Modules				
Elective modules	Credit points		Is module compensatable?	Semester runs in
Chemistry 216 - Organic Chemistry II	15		n/a	Varies by students' cohort entrance (Fall or Spring)
Biology 340 - Neuroscience	15		n/a	
Biology 350 - Microbiology and Infectious Diseases	15		n/a	
Biology 360 - Plant and Animal Biology and Biodiversity	15		n/a	
Biology 370 - Molecular Basis of Behaviour	15		n/a	

Intended learning outcomes at Level 5 are listed below:

Learning outcomes –LEVEL 5	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
A1 Explain the molecular and cellular mechanisms underlying biological systems and their role in maintaining homeostasis and organismal function. A2 Apply biological terminology, nomenclature, and classification systems accurately in relevant scientific and research contexts. A3 Explain the structure and function of cells, tissues, organs, and organ systems, and relate these to physiological and biochemical processes in health and disease. A4 Describe and compare the structure, diversity, and functional roles of microorganisms, including mechanisms of metabolism, pathogenicity, and ecological interactions. A5 Demonstrate understanding of core principles of molecular genetics, biochemistry, and organic chemistry relevant to biological systems.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3B. Cognitive skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
B1 Interpret, analyse, and synthesise biological data and scientific information from a range of experimental, computational, and literature-based sources. B2 Design, implement, and evaluate experimental and computational approaches to address biological research questions, including consideration of limitations, validity, and reliability. B3 Analyse biological systems using quantitative and computational approaches, including basic statistical methods and bioinformatics tools applied to biological datasets. B4 Evaluate the role of behavioural, physiological, and molecular mechanisms in shaping organismal function and adaptation.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
C1 Apply a range of laboratory and computational techniques in biology, including molecular biology, microbiology, biochemistry, and introductory bioinformatics workflows. C2 Use statistical software (e.g., R) to analyse biological datasets and interpret quantitative results appropriately. C3 Conduct laboratory and computational investigations in a systematic manner, including the use of appropriate controls, data recording, and structured reporting.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Tutorials, Laboratory classes, Fieldwork • E-learning and Blended Learning: Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
D1 Communicate scientific concepts, data, and interpretations effectively in written, oral, and digital formats, using appropriate scientific language. D2 Demonstrate independent learning, teamwork, and problem-solving skills. D3 Apply academic conventions including referencing, ethical use of sources, and avoidance of plagiarism in scientific work.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

Programme Structure - LEVEL 6				
Compulsory modules	Credit points		Is module compensatable?	Semester runs in
Biology 430 - Biotechnology Principles and Applications	20		n/a	Varies by students' cohort entrance (Fall or Spring)
Biology 450 - Immunology	15		n/a	
Biology 493 - Thesis I	15		n/a	
Biology 494 - Thesis II	15		n/a	
Major Elective (Group A)	20		n/a	
Major Elective (Group A)	20		n/a	
Major Elective (Group B)	15		n/a	

Programme Structure – Level 6 Elective Modules – <u>Group A</u>				
Elective modules	Credit points		Is module compensatable?	Semester runs in
BIO 420 - Environmental Health and Toxicology	20		n/a	Varies by students' cohort entrance (Fall or Spring)
Biology 440 - One Health and Disease Ecology	20		n/a	
Biology 445 - Field Methods and Ecological Modelling	20		n/a	
Biology 460 - Drug Discovery and Development	20		n/a	
Biology 470 - Epigenetics and Genome Regulation	20		n/a	

Programme Structure – Level 6 Elective Modules – <u>Group B</u>				
Elective modules	Credit points		Is module compensatable?	Semester runs in
Practicum 300 - Practicum	15		n/a	Varies by students' cohort entrance (Fall or Spring)
BIO 410 - Epidemiology and Public Health	15		n/a	
Biology 480 - Microbiome and Human Health	15		n/a	
Biology 490 - Neurobiology of Perception and Decision Making	15		n/a	

Intended learning outcomes at Level 6 are listed below:

Learning outcomes – LEVEL 6	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
A1 Critically appraise the complexity and diversity of life processes through an integrated understanding of organisms, including molecular, cellular, physiological, genetic, evolutionary, and ecological interactions. A2 Critically analyse biological and environmental determinants of health, disease, and sustainability, including organismal responses to physiological and environmental stressors. A3 Critically evaluate bioethical issues arising from advances in biological sciences, including their scientific, social, and cultural dimensions.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3B. Cognitive skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
B1 Critically evaluate and synthesise evidence from primary scientific literature to assess the validity, reliability, and significance of biological research findings. B2 Critically appraise ethical, social, legal, and regulatory frameworks relevant to the application of biological sciences in research and practice. B3 Critically evaluate advances in biomedical and biotechnological tools and their application in the identification, analysis, and manipulation of biological macromolecules. B4 Analyse, interpret, and integrate complex biological datasets, including those derived from bioinformatics databases and computational tools, to draw evidence-based conclusions.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
C1 Independently design, execute, and critically evaluate experimental and computational investigations, including the application of appropriate methodologies, controls, troubleshooting, and validation of results. C2 Design and justify multidisciplinary research strategies for investigating biological systems, including the assessment of human and environmental health, disease processes, and risk factors.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Tutorials, Laboratory classes, Fieldwork • E-learning and Blended Learning: Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
D1 Critically reflect on and demonstrate the skills required for independent learning and professional development, including intellectual autonomy, teamwork, leadership, and effective time management. D2 Critically apply digital, computational, and information management skills to access, evaluate, and synthesise scientific and research literature. D3 Produce and communicate original scientific arguments and research findings, integrating published literature with independently generated data, while adhering to academic integrity and ethical standards.	<u>Learning and Teaching Methods</u> Depending on the mode of delivery, the programme employs a combination of the following approaches: • Scheduled Learning and Teaching: Lectures, Tutorials, Seminars, Laboratory classes, Fieldwork • E-learning and Blended Learning: eLectures and digital learning resources, Computer-based practical work, Online learning activities supporting field and laboratory work • Project and Experiential Learning: Group projects, Site visits, Introductory research projects <u>Assessment Methods</u> Written Examinations, Coursework, Laboratory write-ups, Essays, Reflective and/or technical reports, Presentations (individual and/or group), Research project reports, <i>Viva voce</i>

CURRICULUM MAP

This table indicates which study units assume responsibility for delivering and assessing particular programme learning outcomes.

	Programme outcomes													
Level	Study module/unit	A1	A2		B1	B2		C1	C2	C3		D1	D2	D3
Enhancement modules	Politics 101		x		x	x		x	x				x	x
	CS 101	x						x	x	x		x	x	x
	History 120		x		x	x		x		x		x		x
	English 102	x				x			x	x		x	x	x
	English 204	x	x			x			x	x		x	x	
	Math 120	x	x					x	x	x		x	x	x
	Philosophy 101	x	x		x	x			x	x			x	x
	Psychology 101	x	x			x			x	x		x	x	x

Level	Study module/unit	Programme outcomes																
		A 1	A 2	A 3	A 4	A 5		B 1	B 2	B 3		C 1	C 2	C 3		D 1	D 2	D 3
4	Biology 112 - Principles of Biology	x	x	x				x	x			x		x		x		x
	Biology 113 - Ecology and Evolutionary Biology	x	x			x		x		x			x	x		x		
	Chemistry 117 - General Chemistry for the Biological Sciences	x			x	x			x			x		x		x	x	
	Biology 201 - Foundations of Microbiology		x	x		x		x	x			x	x	x		x	x	
	Anatomy and Physiology 115 - Integrated Human Anatomy and Physiology I	x			x			x		x		x		x		x		x
	Chemistry 215 - Organic Chemistry I					x		x	x			x	x	x		x	x	x

Level	Study module/unit	Programme outcomes																		
		A 1	A 2	A 3	A 4	A 5		B 1	B 2	B 3	B 4		C 1	C 2	C 3		D 1	D 2	D 3	
5	Statistics 211 - Biostatistics with R		x						x	x				x	x			x		
	Biology 230 - Genetics and Molecular Biology	x	x		x	x		x	x				x		x		x	x		
	Biology 310 - Bioinformatics and Computational Biology		x						x	x			x	x	x			x		
	Biology 320 - Biochemistry	x	x			x		x	x		x		x		x			x	x	
	Biology 330 - Cell Biology and Histology	x	x	x				x			x		x		x		x	x		
	Major Elective Modules																			
	Chemistry 216 - Organic Chemistry II	x	x			x		x	x				x		x			x		
	Biology 340 - Neuroscience	x		x				x		x					x		x		x	
	Biology 350 - Microbiology and Infectious Diseases		x		x			x	x		x		x				x		x	
	Biology 360 - Plant and Animal Biology and Biodiversity	x	x		x			x		x	x		x	x			x	x		
	Biology 370 - Molecular Basis of Behaviour	x		x		x		x			x				x		x		x	

Level	Study module/unit	Programme outcomes															
		A 1	A 2	A 3		B 1	B 2	B 3	B 4		C 1	C 2		D 1	D 2	D 3	
6	Biology 430 - Biotechnology Principles and Applications	x	x	x				x	x			x	x		x	x	
	Biology 450 - Immunology	x	x			x		x			x			x		x	
	Biology 493 - Thesis I			x		x	x		x		x	x			x	x	
	Biology 494 - Thesis II	x	x			x			x		x	x		x	x	x	
	Major Electives - Group A																
	Biology 420 - Environmental Health and Toxicology		x	x			x		x		x	x		x	x		
	Biology 440 - One Health and Disease Ecology	x	x					x	x		x	x		x		x	
	Biology 445 - Field Methods and Ecological Modelling	x				x			x		x	x			x	x	
	Biology 460 - Drug Discovery and Development	x	x			x			x		x	x		x	x	x	
	Biology 470 - Epigenetics and Genome Regulation	x	x			x		x	x		x				x		
	Major Electives - Group B																
	Practicum 300 - Practicum	x					x	x			x			x		x	
	Biology 410 - Epidemiology and Public Health		x	x		x		x			x				x		
	Biology 480 - Microbiome and Human Health		x	x			x		x		x				x	x	
Biology 490 - Neurobiology of Perception and Decision Making	x		x		x		x				x			x		x	

6. CURRICULUM MAP

YEAR 1

- Biology 112: Principles of Biology
- Chemistry 117: General Chemistry for the Biological Sciences
- Anatomy and Physiology 115: Anatomy and Physiology of the Human Body I
- English 101: Introduction to Written Discourse I
- Economics 101: Introduction to Macroeconomics
- Mathematics 120: Calculus I
- Computer Science 101: Digital Literacy
- English 102: Introduction to Written Discourse II
- Philosophy 101: Introduction to Philosophy and Critical Thinking
- Biology 299: Research Methods in Biological Sciences

YEAR 2

- Biology 113: Ecology and Evolutionary Biology
- Biology 201: Fundamentals of Microbiology
- Chemistry 215: Organic Chemistry I
- Anatomy and Physiology 116: Anatomy and Physiology of the Human Body II
- Biology/Philosophy 310: Bioethics
- Statistics 211: Biostatistics using R
- English 204: English for Professional Purposes
- History 120: The Modern World
- Psychology 101: Introduction to Psychology
- Physics 120: Physics I

YEAR 3

- Biology 230: Genetics and Molecular Biology
- Biology 320: Biochemistry
- Biology 330: Cell Biology and Histology
- Biology 310: Bioinformatics and Computational Biology
- Political Science 101: Contemporary Politics
- Two elective courses, chosen from: Chemistry 216 (Organic Chemistry II), Biology 340 (Neuroscience), Biology 350 (Microbiology and Infectious Diseases), Biology 360 (Plant and Animal Biology and Biodiversity), Biology 370 (Molecular Basis of Behaviour)
- Two general-elective courses

YEAR 4

- Biology 430: Biotechnology Principles and Applications
- Three elective courses, chosen from: Biology 410 (Epidemiology and Public Health), Biology 420 (Environmental Health and Toxicology), Biology 440 (One Health and Disease Ecology), Biology 445 (Field Methods and Ecological Modeling), Biology 460 (Drug Discovery and Development), Biology 470 (Epigenetics and Genome Regulation), Biology 480 (Microbiome and Human Health), Biology 490 (Neurobiology of Perception and Decision Making), or Practicum 300 (Practicum)
- Biology 450: Immunology
- Biology 493: Thesis I
- Biology 494: Thesis II
- One general-elective course

Indicative Module Selection Aligned to Programme Themes

Module selection is determined by the student's personal preferences and career aspirations, finalized in consultation with their assigned Academic Advisor. The module sequencing and placement presented in the accompanying table are purely indicative. As the program does not pathway into formal concentrations, students retain the flexibility to select any elective module offered within the program, subject to prerequisites and availability.

Biotechnology and Drug design	Microbiology, Infectious Diseases and Public Health	Applied Ecology and Conservation	Neuroscience
Chemistry 216 - Organic Chemistry II (L5)	Biology 350 - Microbiology and Infectious Diseases (L5)	Biology 370: Molecular Basis of Behaviour (L5)	Biology 340 - Neuroscience (L5)
Biology 350 - Microbiology and Infectious Diseases (L5)	Biology 360 - Plant and Animal Biology and Biodiversity (L5)	Biology 360 - Plant and Animal Biology and Biodiversity (L5)	Biology 370 - Molecular Basis of Behaviour (L5)
Biology 440 - One Health and Disease Ecology (L6)	Biology 440 - One Health and Disease Ecology (L6)	Biology 440 - One Health and Disease Ecology (L6)	Biology 480 - Microbiome and Human Health (L6)
Biology 460 - Drug Discovery and Development (L6)	Biology 480 - Microbiome and Human Health (L6)	Biology 445 - Field Methods and Ecological Modeling (L6)	Biology 440 - One Health and Disease Ecology (L6)
Biology 470 - Epigenetics and Genome Regulation (L6)	Biology 470 - Epigenetics and Genome Regulation (L6)	Biology 480 - Microbiome and Human Health (L6)	Biology 470 - Epigenetics and Genome Regulation (L6)
Biology 420 - Environmental Health and Toxicology (L6)	Biology 420 - Environmental Health and Toxicology (L6)	Biology 420 - Environmental Health and Toxicology (L6)	Biology 420 - Environmental Health and Toxicology (L6 A)
Biology 480 - Microbiome and Human Health (L6)	Biology 410 - Epidemiology and Public Health (L6)	Biology 410 - Epidemiology and Public Health (L6)	Biology 490 - Neurobiology of Perception and Decision Making (L6)
Practicum 300 - Practicum(L6)	Practicum 300 - Practicum(L6)	Practicum 300 - Practicum(L6)	Practicum 300 - Practicum(L6)

7. MODULE SPECIFICATIONS

1.1 Factual information			
Course title	ENG 102- English Composition II		
Course tutor	Dr. Filio Chasioti	Credit value	15
Office hours	TBA		
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the Course within the degree scheme/Prerequisites/other entry requirements

English 102 is designed to extend critical reading and writing skills whilst emphasizing critical inquiry and research. In the first part of the module, students engage in reflective writing, conduct primary research and learn how to produce research-based writing in formats appropriate to content, purpose, genre and audience. Working as researchers, class members will locate, read, evaluate, analyse, and synthesise appropriate sources as they develop and refine their research projects. To this end, research is emphasized as the path of inquiry not just information that comes from the library but also through observations, interviews and personal experience. In the second half of the module, students will be introduced to the mode of argumentation and argumentative strategies whilst demonstrating critical thinking and logical reasoning. In this part of the module, students are encouraged to take a stance on issues of public concern, so as to begin to view themselves as engaged citizens.

3. Aims of the Course

Students in English 102 will develop writing and critical thinking abilities requisite to planning, elaborating and completing research papers. By the end of the module, students will be able to identify valid issues for research purposes and employ research methods to locate and record accurate, valid information relevant to an academic research project. This will be introduced by Bissell Library staff in the form of information literacy sessions. In addition to developing common academic writing practices such as summarizing and paraphrasing, students will be able to judge the value of information including distinguishing between primary and secondary sources.

4. Pre-requisite Courses or specified entry requirements

N/A

5. Indicative content

Week 1

Introduction to the Course and the Syllabus

What is Research? The Process and Principles of Research Writing

Choosing a Topic: Finding a workable topic and Preliminary Topic Proposals (Brainstorming Activities to Explore Ideas for Topics)

Building a Paper: "Three Steps for Choosing a Research Topic"

Elements of a Research Question

Week 2

Library Sessions: Conducting field research (Locating and Gathering appropriate sources for your topic-advanced methods research and use of databases/internet search beyond Google)

The Harvard OU referencing style for in-text citations and the reference list of the selected sources

Evaluating sources and websites - Ethics in secondary research

The appropriate and ethical use of AI tools (issues: hallucination, misinformation, etc.)

Week 3

Library Sessions: Building a Paper: Independent Research

Thesis Statement of the Research Project

Writing a Working References List

Writing a Research Proposal

Doing the Research- Note-taking Methods

Week 4

Creating a Formal Outline

Expanding the Outline with Evidence (planning & drafting)

Guidelines for Choosing Effective Evidence

Building a Paper: "Integrating evidence into your paragraphs"

(deadline to submit proposal, thesis statement, formal outline and sources of the Research project; by Sunday, 23:59)

Week 5

Summarizing and Paraphrasing skills/Avoiding Plagiarism
 Writing Effective Paraphrases / Activities to Practice Paraphrasing
 Writing Effective Summaries

Week 6

Responding to other people's writing / Combining a Summary and a Response
 Writing Effective Introductions and Conclusions
 Three Steps for Writing the Body of your Paper
 Building Cohesion in your Paper
 Audio Visual Presentation (Film)

Week 7

Documenting your Sources - Harvard OU style In-text citations and Referencing/Preparing a Bibliography page
 The Critical and Exemplification Essay- Presentation and Guidelines
(Critical & Exemplification Essay Assignment to be written in class)

Week 8

Creating Effective Oral Presentations – Guidelines
 Evaluating Oral Presentations (videos and class discussion)
 Working on the PowerPoint of the Research Project
(Submission of the Final Draft of the Research Project; by Sunday, 23:59)

Week 9

Students' Presentations of the Research Project
(Submission of the PowerPoint Presentation; by Sunday, 23:59)

Week 10

Students' Presentation of the Research Project
(Journal Entry -Reflection Assignment to be written in class)

Week 11

The Argumentative Essay – Organization of Argumentative Essays
 Outlining an Argumentative Essay
 The Thesis of an Argumentative Essay
 Supporting Arguments
 Discussion of evidence and appeals/Reasoning in arguments (Common Fallacies)
 The Holy Trinity of Argumentation- *Ethos, Pathos and Logos*
 Readings related to the topic of the Argumentative Essay (*Patterns for College Writing*) and Class Discussion
(Submission of the Argumentative Essay; by Sunday, 23:59)

1. Factual information

Course title	English 204 - Business & Professional Communication.		
Course tutor	Dr. Ian Kehoe	Credit value	15
Office hours	TBA		
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the course within the degree scheme/Prerequisites/other entry requirements

This module prepares students for the realities of contemporary professional communication by enabling them to develop a strategic, audience-centered approach to their written and oral communication.

3. Aims of the course

It has three core aims: first, to develop students' critical thinking and audience analysis skills to improve their planning of professional communications; second, to strengthen students' proficiency in written, verbal, non-verbal, and digital communication modes; third, to increase their awareness of the conventions and challenges of contemporary professional communication.

4. Pre-requisite courses or specified entry requirements

N/A

4. Pre-requisite courses or specified entry requirements	
5. Indicative content	
Week 1	Introduction to the course Understanding Business Communication [Components of communication, Verbal and Nonverbal, Barriers to Communication, Active listening, Cultural awareness and communication]
Week 2	The Writing Process [Audience Analysis, planning drafting, revising, focus on writing effective paragraphs, tone, sentence structure, the 'you view']
Week 3	Writing Neutral and Positive Messages [Planning & organizing, different types of positive and neutral messages, using digital media in business]
Week 4	Writing Bad-News Messages [Planning & organizing, different types of bad-news messages, focus on vocabulary choice and tone.]
Week 5	Persuasive Messages [planning & organizing different types of persuasive messages. Focus on persuasive techniques and language.]
Week 6	Effective oral presentations [planning, visuals, audience analysis, delivery]
Week 7	Midterm Exam Review and Exam
Week 8	Employment communication [résumé writing, cover letters, the interview process]
Week 9	Assignment 2: Group Presentations
Week 10	The basics of proposal writing Writing an effective proposal [planning, researching, organizing, writing]
Week 11	Review of course content and preparation for final exam

1. Factual information			
Course title	History 120: The Modern World		
Course tutor	Dr. Josef Gratale	Credit value	15
Office hours	TBA		
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the Course within the degree scheme/Prerequisites/other entry requirements

This is a required module for all students. It introduces students to major global historical developments from the 16th century to the present, allowing them to acquire a broad understanding of the shaping of the modern world.

3. Aims of the Course

This module sets out to explore and investigate a wide range of developments relating to modern global history. The module begins in the 1500s with the growing interaction among the world's peoples, and concludes in the early twenty-first century with today's highly integrated, but also uneven and divided world. In the main, we will consider the contributions of various individuals, societies, cultures, and communities to what is a seemingly endless flow of 'stories' and narratives. We will focus on an array of topics and themes such as: social change and revolution; patterns of cultural development and cross-cultural exchange; intellectual thought and systems of knowledge; forms of political organization and the politics of power; aspects of economic relations and technological advances; as well as issues related to war, justice, and peace. In order to constructively engage with such material this module will embrace a cross-disciplinary approach, embracing a range of domains from the social sciences and

humanities. Alongside analyses of written texts, we will also consider various visual forms and media including photography, film, documentary, painting/sculpture, and architecture in order to locate different perspectives and responses to what constitutes the global historical experience.

4. Pre-requisite Courses or specified entry requirements

N/A

5. Indicative content

Week 1

Change in history: how is the contemporary world different from the one 500 years ago?
Columbus and the “discovery” of the Americas. Slavery in the New World.

Week 2

The fall of the Byzantine Empire, and the rise of the Ottoman Empire. Muslims, Christians, and Jews in the Ottoman Empire
The Reformation and Counter-Reformation in Europe. The Thirty Years War (1618-48) and the birth of the modern states system

Week 3

The Age of Absolutism. The Scientific Revolution and the Enlightenment. 18th century Europe and the French Revolution (I)
The French revolution (II). Napoleon; and the Napoleonic wars. The Congress of Vienna (1815) (I)

Week 4

The Industrial Revolution. Europe and the World in the Age of Revolutions (1815-1848)
The Congress of Vienna (1815) (II); Europe and the World in the Age of Revolutions and Empires (1815-1914)

Week 5

“New Imperialism” and colonialism in Africa and Asia
Interstate rivalries in Europe, 1870-1914; the First World War (1914-18)

Week 6

The “Greater War” (1918-23); peace at the end of WWI (1918-19)

Week 7

The Russian Revolution of 1917; the rise of communism; and the Russian civil war
Europe and the world in the interwar era: the “roaring ‘20s”; and the rise of totalitarianism: Fascism; Nazism; Stalinism

Week 8

The Second World War and its origins; genocide; and the Holocaust
The postwar world: The origins of the Cold War in Europe and the world

Week 9

Decolonization and the Cold War in the Third World
Postwar culture in the West: Sex, drugs and rock’n’roll; socialist societies (1950s-1980s)

Week 10

The late phase and end of the Cold War; global (dis)order in the 1990s and after 9/11
Class presentations

Week 11

Class presentations
Course overview and revision

1. Factual information

Course title	Philosophy 101 - Introduction To Philosophy and Critical Thinking		
Course tutor	Dr. Ian Kehoe	Credit value	15
Office hours	TBA		
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the Course within the degree scheme/Prerequisites/other entry requirements

This course is required for all students. It introduces students to major philosophical questions and traditions that have shaped intellectual life from antiquity to the present. By examining foundational debates concerning knowledge, reality, freedom, belief, and meaning, the course provides students with a broad understanding of how philosophical reflection has contributed to the formation of modern thought and contemporary culture. Through engagement with influential thinkers from ancient Greece to modern Europe, students encounter the historical development of philosophical inquiry and its continuing relevance to present-day concerns, including science, religion, artificial intelligence, relativism, and the search for meaning. The course strengthens students’ ability to think critically, analyze arguments, and engage constructively with complex and contested ideas.

3. Aims of the Course			
This course sets out to explore and investigate a range of fundamental philosophical questions that have shaped Western intellectual history and continue to inform contemporary debates. The course begins with the origins of philosophical inquiry in ancient Greece and proceeds through early modern epistemology to modern existentialism and contemporary reflections on meaning and human flourishing. The course examines key themes including: the tension between appearance and reality; skepticism and certainty; rationalism and empiricism; scientific inquiry and its limits; the crisis of modernity and nihilism; existential freedom and responsibility; and the role of friendship, community, and shared activity in human flourishing. In order to engage constructively with this material, the course adopts a historically informed and conceptually focused approach. Alongside analysis of selected philosophical texts, we will consider contemporary applications of philosophical ideas, including artificial intelligence, social media and mediated reality, pluralism, and cultural disagreement. Emphasis is placed on the development of analytical reasoning, clear argumentation, reflective judgment, and respectful dialogue.			
4. Pre-requisite Courses or specified entry requirements			
N/A			
5. Indicative content			
Week 1 What Is Philosophy? Introduction to philosophical thinking, subfields of philosophy, open vs. closed questions, argument analysis. Week 2 The Birth of Philosophy: Ancient Thought. Presocratics; Plato's Allegory of the Cave; Aristotle's <i>ergon</i> argument and empirical science. Week 3 Rationalism and Cartesian Doubt. René Descartes: Methodical doubt, Cogito, rationalism, the search for certainty. Week 4 Empiricism and Induction. John Locke, David Hume. Tabula rasa, causation, problem of induction. Week 5 Mind and Body. Dualism vs. physicalism, consciousness, Turing Test, AI. Week 6 Self, Freedom, and Responsibility. Personal identity, determinism, compatibilism, moral agency. Week 7 God and Nihilism. Arguments for/against the existence of God, the problem of evil, "death of God," Friedrich Nietzsche's nihilism. Week 8 Existentialism: Essence and Existence. Jean-Paul Sartre, Simone de Beauvoir, and Albert Camus. Absurdity, revolt, authenticity. The Myth of Sisyphus. Week 9 Objectivity and Relativism. Truth, value, cultural disagreement, moral relativism. Implications for democracy and pluralism. Hannah Arendt on Truth in Politics. Week 10 The Meaning of Life and Human Flourishing. A. C. Grayling; Aristotle on friendship and flourishing; relational meaning; mortality; reflection. Week 11 Course Overview; Synthesis of themes.			

1. Factual information			
Course title	POLITICS 101 - Contemporary politics		
Course tutor	Dr. Pavlos Koktsidis	Credit value	15
Office hours	TBA		
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the Course within the degree scheme/Prerequisites/other entry requirements
The purpose of this Course is to help students discard the negative baggage they carry with them instinctively about politics in order to examine somewhat more objectively the main issues and branches of the academic discipline commonly called political science.

2. Aims of the Course

Politics is one of the richest fields of human inquiry, made all the more essential in that just about everything we do in this life can be interpreted to have a political sense. This course is concerned with contemporary politics on two distinct levels. First, it deals with those activities and issues of importance to anyone who is a member of a modern liberal democratic polity -- rights and responsibilities, voting and political participation, power, authority, and legitimacy, ideology and culture -- in short, political socialization and citizenship. Second, it examines how polities govern themselves and relate with other polities, through a study of the branches of government, of political parties and interest groups, and of different actors in international relations.

4. Pre-requisite Courses or specified entry requirements

N/A

5. Indicative content

The course begins by recapitulating the work, methods and subfields of political science, major political ideologies, the concept of political culture, political communication and the processes of political socialization. The Course then moves on to consider the parameters of political participation, the individual and the citizen in the political process, to the understanding of political groups (interest groups, political parties) as well as international politics and conflict resolution. It then considers lawmaking and the division of power, government at work, executives and bureaucrats, public policy and policy formation and the notion of justice and legal cultures. It finally discusses different types of local, regional, provincial and federal governments, international government, the contemporary international system as well as political and economic globalisation and the prospects for global democracy.

Indicative readings from the textbook (see below):

Chapter 1 Politics, Setting the stage, pages 7-21

Chapter 3 The modern State, pages 65-77

Chapter 8 Political Culture and Political Socialization, pages 198-209

Chapter 11 Political Parties, pages 263-273

Chapter 12 Interest groups, pages 295-303

Chapter 14 Parliamentary government pages 327-339

Chapter 15 Presidential government pages 350-363

Factual information

Course title	Psychology 101 - Introduction to Psychology		
Course tutor	Dr. Anastasia Chalkia	Credit value	15
Office hours	TBA		
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the Course within the degree scheme/Prerequisites/other entry requirements

This is a required introductory level for both psychology and non-psychology majors.

3. Aims of the Course

This module aims at providing a comprehensive introduction to the essential principles of the academic discipline of psychology by addressing such important topics as the history and evolution of psychology, biological basis of behaviour, memory and intelligence, personality, mental disorders and treatment, stress, coping and health and finally research methods and ethics in psychology. For each of the above topics the major theoretical approaches, research findings, and historical and contemporary trends in the science of psychology will be presented and explained. Students are encouraged to assess the contribution and applicability of psychological research to daily life through class discussions, presentations and written assignments.

4. Pre-requisite Courses or specified entry requirements

N/A

5. Indicative content

2. Introduction to the science of Psychology

3. Psychology Research
4. Biology and Behavior-The Brain
5. Developmental psychology
6. Sensation, perception, consciousness
7. Learning & memory
8. Decision Making I Cognition, Language, & Intelligence
9. Emotion & Motivation Culture
10. Social psychology
11. Personality
12. Psychological Measurement
13. Psychological Disorders & Therapies
14. Psychological Health Positive Psychology
15. Other areas of Psychology Current and future issues in Psychology

1. Factual information			
Course title	CS101 - Digital Literacy		
Course tutor	Dr. Iosif Victoratos	Credit value	15
Office hours	TBA		
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the Course within the degree scheme/Prerequisites/other entry requirements

The module serves as an introductory course to digital literacy, both on a theoretical and a practical level. The course focuses on general purpose computing and collaborative office productivity, networks and the Internet, data / information management and social media.

The module reflects the liberal arts focus of ACT, one that intends to produce capable, skilled and informed graduates who will be successful both professionally and also as citizens of the society.

Under the umbrella of Computer Science 101, students are exposed to:

- computer architecture and security basics
- networking and communication
- fundamental principles of operating systems architecture, organization and human-computer interaction,
- office automation and productivity tools
- cloud computing and collaboration
- information management, social media and professional practices,
- Generative AI

Of key importance is concurrently learning to identify and utilize them for everyday business tasks.

On a practical level, students learn how to use:

- Operating Systems (proprietary and FOSS) and collaborative cloud-based office productivity software;
- how to publish and present their work using computing and mobile / smart devices and the internet;
- how to use web 2.0 tools for content creation and delivery (collaborative wikis, blogs, newsgroups, social media platforms);
- how to create and manage their personal digital identity;
- how to organize and process data;
- how to search for and critically evaluate information which is available on the world wide web and scientific literature databases;
- how to plan collaborative projects using modern web-based tools.
- how to properly use generative AI tools both for information research as well as content creation.

Students are also exposed to technical writing, collaborative information- and communication-supported projects, as well as effective public speaking skills and methodologies.

3. Aims of the Course	
The CS101 module aims to build the competencies required for active participation in an information-driven society and workforce. This includes knowledge, skills and behaviors involving the effective use of digital devices such as smartphones, tablets, laptops, and desktop PCs for communication, expression, collaboration and advocacy. Both theoretical and practical skills will be developed, including analytical skills, critical judgment of quality, availability and reliability of information, reading and understanding charts, task planning and time organization, data processing and presentation, as well as facilitation of telecommunication. Ultimately, the module aims at instructing students to become autonomous, sophisticated computer users, advancing beyond basic computing skills.	
4. Pre-requisite Courses or specified entry requirements	
It is expected that participating students are already familiar in using digital devices such as personal computers, smartphones, tablets, laptops, etc, have already had some exposure to either the Android / iOS, or MS Windows operating systems, as well as some experience with the basics of office productivity software.	
5. Indicative content	
– Introduction to computer science, Computer architecture and security basics, Networks and the Internet, Cloud-based computing, Ethics and AI (week 1) – The Microsoft Windows / and GNU Linux operating systems, file management and organization (week 2) – Word processing and online cloud docs, collaborative reviewing of large documents: Microsoft Word (weeks 2,3) – Technical writing, scientific literature databases, publication impact metrics (week 4) – Use of Generative AI tools for problem analysis and literature review (week 4) – Critical AI interaction and prompt engineering (Week 5) – Review and midterm examination (Week 6) – Spreadsheet data management and visualization: Microsoft Excel, cloud-based spreadsheets and AI automations (weeks 7, 8) – Other collaborative cloud-based office automation, calendars, forms and file sharing (week 9) – Optimizing public presentation impact: Microsoft PowerPoint (week 9) – Use of generative AI tools for developing academic skills and producing artifacts (graphs, webpages, apps, etc.) (Week 10) – Cloud Computing, collaborative cloud-based tools, web content creation (including content creation through the use of generative AI) and delivery (weeks 10, 11)	

1. Factual information			
Course title	Mathematics 120 – Calculus I		
Course tutor	Dr. Vasilis Daskalogiannis	Level	
Office hours	TBA	Credits	15
Notional learning hours: 150	150 notional hours: 44 hrs lecture/guided discussion, 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the course within the degree scheme/Prerequisites/other entry requirements
The purpose of this course is to give a solid foundation in Calculus concepts, tools and techniques for the student entering Science and Engineering fields. The course covers definition, calculation, and major uses of the derivative, as well as an introduction to integration. Topics include limits; the derivative as a limit; rules for differentiation; and formulas for the derivatives of algebraic, trigonometric, and exponential/logarithmic functions. Also discusses applications of derivatives to motion, density, optimization, linear approximations, and related rates. Topics on integration include the definition of the integral as a limit of sums, anti-differentiation, the fundamental theorem of calculus, and integration by the u-substitution and substitution by parts. The course emphasizes conceptualization, modelling, and skills. All three are of great importance. There is a concentration on multiple ways of viewing functions, on a variety of problems where more than one approach is possible, and on student activity and discussion.

3. Aims of the course

By the completion of this course it is the aim and hope of the mathematics faculty that students who work hard and apply themselves will be able to:

- help students acquire a solid foundation in Differential and Integral calculus skill and concept, in order to prepare them for other university courses that require such knowledge
- show to students how math can model and solve authentic real-world problems
- enable students to develop problem-solving skills, fostering critical thinking, within a varied and interesting setting
- encourage modelling and use of mathematics in Science and Engineering fields

4. Pre-requisite courses or specified entry requirements

N/A

5. Indicative content

Chapter 1: Functions and Models
Chapter 2: Limits and Derivatives
Chapter 3: Differentiation Rules
Chapter 4: Applications of Differentiation
Chapter 5: Integrals
Chapter 7: Section 7.1- Integration by parts

1. Factual information

Module title	Biology 112 – Principles of Biology		
Module tutor	Dr. Eleftheria Barlaka	Level	4
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

This is a required module for all Biological Sciences majors. This module is designed to introduce the basic principles of modern biology, the framework within which new discoveries are interpreted, and the relations among various branches of biological research. Students who are interested in careers in biological sciences, biomedical sciences, and biotechnology should find that the module provides a firm grasp on an understanding of the concepts that will serve them well in their academic track that lies ahead.

3. Aims of the module

The goal of this module is to provide students with a firm grasp of the major concepts underlying biological processes. In this context, students are introduced to major structures and functions of the biological systems, essential metabolic processes, principles of genetics and molecular biology and the fundamentals of the evolutionary theory. Additionally, they appreciate that biological processes are manifested in diverge ways in health and disease, and their knowledge and understanding take on greater significance in everyday life more than ever before.

4. Pre-requisite modules or specified entry requirements

N/A

5. Indicative content	
– The scientific method – Basic chemistry – Properties of water – Biological macromolecules – Cells and cellular organelles – Cell membrane: structure and role – Metabolism and energy – Cellular respiration – Photosynthesis – Cell communication – DNA structure and replication – Gene expression: Transcription and translation – Mendelian and non-mendelian genetics – Biotechnology principles – Principles of Evolution	
Laboratory Investigations	
– Lab safety, rules and regulations – Biological macromolecules identification – Microscopic examination of cells – Membrane transport – Spectrophotometry principles – Carbon Cycle – Gel electrophoresis – DNA extraction and DNA damage – CRISPR (Virtual Lab) – Blood typing	

1. Factual information			
Module title	Biology 113 – Ecology and Evolutionary Biology		
Module tutor	Dr. Andreas Anestis	Level	4
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face. Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This module introduces students to two unifying perspectives in biology: how organisms change through evolutionary processes and how organisms interact with each other and with the physical environment. The module is designed for first-year undergraduate students. Students encounter core concepts in natural selection, population genetics, speciation, phylogenetics, biodiversity, population ecology, species interactions, community structure, energy flow, nutrient cycling, and conservation. Laboratory and field sessions reinforce lecture concepts through basic microscopy, ecological sampling, simple environmental measurement, biodiversity observation, guided data handling, and elementary interpretation of ecological and evolutionary evidence.

3. Aims of the module
The goals of this module are to: • Introduce the vocabulary, concepts, and evidence base of ecology and evolutionary biology at a foundation level.

- Help students recognize evolution as a unifying explanation for biodiversity and ecological adaptation.
- Enable students to identify major ecological levels of organization: organism, population, community, ecosystem, biome, and biosphere.
- Build basic practical competence in safe laboratory work, observation, microscopy, field sampling, measurement, data recording, and simple data presentation.
- Develop responsible teamwork, scientific communication, source use, and awareness of human impacts on biodiversity and ecosystems.

4. Pre-requisite modules or specified entry requirements

N/A

5. Indicative content

Lecture concepts include:

- Nature of science, hypothesis, observation, measurement, experimental and observational studies
- Ecology as the study of organism-environment interactions; levels of ecological organization
- Evolution by natural selection; adaptation; fitness; heritable variation
- Population genetics at foundation level: allele frequency, Hardy-Weinberg expectations, genetic drift, gene flow
- Speciation, reproductive isolation, extinction, adaptive radiation
- Phylogenetics and taxonomy: tree thinking, domains of life, major lineages of organisms
- History of life: origin of life, fossil record, mass extinctions, major transitions
- Climate, biomes, temperature and water relations, organismal adaptations to terrestrial and aquatic environments
- Population distribution, abundance, density, dispersion, survivorship, exponential and logistic growth
- Species interactions: competition, predation, herbivory, parasitism, mutualism, commensalism
- Community structure: richness, diversity, trophic structure, keystone species, invasive species, succession
- Ecosystem ecology: primary production, food webs, energy flow, carbon, nitrogen and water cycles
- Biodiversity, conservation biology, ecosystem services, climate change, habitat loss, pollution and restoration

Laboratory and field concepts include:

- Laboratory safety, fieldwork ethics, inclusive fieldwork conduct, basic data management
- Microscopy, biological drawing, organism observation and introductory classification
- Sampling designs: random, stratified and systematic sampling; quadrats and transects
- Abiotic environmental measurements: temperature, light, pH, moisture, turbidity or conductivity, as locally appropriate
- Climate diagrams and biome classification exercises
- Guided phylogenetic tree construction and interpretation from morphological or DNA examples
- Natural selection and speciation using curated virtual data or simple class simulations
- Population size, distribution and growth using field observations or simulation datasets
- Biodiversity observation, species richness, relative abundance and simple diversity indices
- Soundscape ecology, citizen science, eBird/iNaturalist-style observation and ethical data sharing
- Species interactions and food-web construction from campus or local field observations

1. Factual information			
Module title	Biology 201 – Foundations of Microbiology		
Module tutor	Dr. Eleftheria Barlaka	Level	4
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This is a required module for all Biological Sciences majors. The goal of this course is to introduce foundational concepts in microbiology and their connection with all the health care fields. The course subjects include the identification of microbes, mechanisms of pathogenicity and microbial disease, structure and response of the host immune system, and prevention against the spread of infectious disease.

3. Aims of the module
This module aims to introduce students to the fundamental concepts of microbiology and their relevance to human health. Students will be familiarised with the basic structure and classification of microorganisms, the principles of microbial growth and control, and the essential features of the human immune response. The module also introduces students to laboratory safety, basic microbiological techniques, and the importance of microbiology in clinical and public health contexts.

4. Pre-requisite modules or specified entry requirements
Biology 112

5. Indicative content
Week 1: Introduction to Microbiology. History of Microbiology. Concepts of infectious diseases. Week 2: Observing Microbes. Bacterial Cell Biology Week 3: Microbial growth, nutrition and control. Week 4: Bacterial Genetics. Bacterial Genomes and Evolution. Bacterial Diversity. Week 5: Viruses. Sterilization and Disinfection. Week 6: Basic Concepts and Agents Antibiotic and Antiviral therapy introduction. Week 7: Antibiotic and Antiviral therapy. Normal Human Microbiota. Week 8: Vaccines and Diagnostics. Week 9: Microbial Pathogenesis Week 10: Diagnosing Infectious Diseases Week 11: Environmental and Food Microbiology. <u>Indicative LAB experiments</u> Aseptic technique, preparation of media, pure culture, inoculation methods Viable cell count, serial dilutions, pour and spread plate methods Biochemical identification of isolates. Catalase, oxidase, coagulase tests, motility test Antibiotic sensitivity disc diffusion assay Growth curve construction, OD600

1. Factual information			
Module title	Biology 230 – Genetics and Molecular Biology		
Module tutor	Dr. Eleftheria Barlaka	Level	5
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This is a required module for all Biological Sciences majors. This module is designed to introduce the basic principles of modern genetics and molecular biology, the framework within which new discoveries are interpreted, and the relations among various branches of biological research. Students who are interested in careers in biological sciences, biomedical sciences, and biotechnology should find that the module provides a firm grasp on an understanding of the concepts that will serve them well in their academic track that lies ahead.

3. Aims of the module
The goal of this module is to provide students with an understanding of fundamental concepts in genetics and molecular biology. In this context, the central dogma in molecular biology, cell division, regulation of gene expression, mendelian, non-mendelian and molecular genetics, genes linkage and mapping, mutations, biotechnology, developmental, evolutionary, and population genetics are examined. Additionally, students develop skills, such as sequence analysis, computational methods, and statistics – all of which they will acquire within the lab session of the module, and all of which are highly valued in today's research environment.

4. Pre-requisite modules or specified entry requirements
Biology112

5. Indicative content
Week 1: Class overview. Cell division Week 2: Mendelian genetics. Sex determination and chromosomes Week 3: Mendelian inheritance extensions. Extranuclear Inheritance, Imprinting, maternal effect. Week 4: Genetic linkage and mapping in Eukaryotes. Week 5: Variations in chromosome structure and number. Bacterial Genetics Week 6: Viruses genetics. DNA replication and recombination Week 7: Gene transcription and RNA modification Week 8: mRNA translation. Week 9: Gene regulation. Mutations and DNA repair. Week 10: Molecular technology. Medical Genetics and Cancer Week 11: Population genetics. Class overview preparation for the finals <u>Indicative Lab content</u> -Restriction Enzyme digests -Real time PCR -Introduction to Bioinformatics (Homolog searches using NCBI's BLAST tool ,primer design) -Recombinant DNA techniques -Bacterial Transformation and Blue white colony screening

1. Factual information			
Module title	Biology 310 – Bioinformatics and Computational Biology		
Module tutor	TBD	Level	5
Module type	Taught: Lecture / Guided discussion / Computational Lab	Credit value	15
Mode of delivery	100% face-to-face		
Notional learning hours	150 notional hours: 29.5 hrs lecture/tutorials, 20 hrs computational lab, 100.5 hrs guided independent study.		

2. Rationale for the module and its links with other modules
This module introduces students to the principles and applications of bioinformatics and computational biology. It provides the foundation for analysing biological data, including DNA, RNA, and protein sequences, and understanding their structure and function through computational tools. The module bridges biology, chemistry, and data science, preparing students for advanced studies in molecular biology, drug discovery, biotechnology, and computational life sciences.

3. Aims of the module
Introduce biological data types and major bioinformatics databases. Explain sequence alignment and structural analysis principles. Develop skills in computational analysis of biological systems. Apply bioinformatics tools to real biological problems. Integrate sequence, structure, and function relationships and provide foundational skills for computational drug discovery

4. Pre-requisite modules or specified entry requirements
Biology 112, Biology 230

5. Indicative content
Week 1: Foundations of Bioinformatics and Biological Data Systems Week 2: Sequence Alignment Theory and Pairwise Workflows Week 3: Database Mining and Heuristic Sequence Searching Week 4: Multiple Sequence Alignment (MSA) and Conserved Domains Week 5: Molecular Phylogenetics and Evolutionary Tree Construction Week 6: Macromolecular Structural Hierarchies and Spatial Analysis Week 7: Computational Structural Modeling and AlphaFold Workflows Week 8: Genomics, Transcriptomics, and Functional Annotation Week 9: Cheminformatics and Small-Molecule Repositories Week 10: Molecular Docking and Virtual Ligand Screening Week 11: Computational ADMET Profiling and Lead Optimization <u>Indicative Laboratory Practicals (Computational Workshops)</u> Biological Data Mining and Database Interoperability Pairwise Sequence Alignment and Local Homology Optimization Heuristic Database Searching and High-Throughput Homology Pipelines Multiple Sequence Alignment (MSA) and Evolutionary Phylogenetics Macromolecular Visualization and Binding-Pocket Topology Analysis De Novo Structural Informatics and AI-Driven Modeling Validation Cheminformatics, Target Preparation, and Grid Parameterization Virtual Ligand Screening, Molecular Docking, and ADMET Profiling

1. Factual information			
Module title	Biology 320 – Biochemistry		
Module tutor	Dr. Maria Kalamaki	Level	5
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This module is required for all Biology majors. This module provides an exploration of biological chemistry, transitioning students from foundational chemical principles to the molecular networks that sustain living systems. The curriculum contrasts the simple structural frameworks of monomeric building blocks with the functional adaptability of complex macromolecules. Students will analyse the contribution of non-covalent interactions to macromolecular folding within aqueous environments and map biological energy-conversion pathways in thermodynamic detail. This module establishes the core biochemical literacy, molecular visualization tools, and quantitative laboratory proficiencies required for advanced levels of biological and biomedical study.

3. Aims of the module
This module aims to provide a comprehensive, mechanistic evaluation of the molecular processes governing cellular systems. It focuses on enabling students to correlate complex macromolecular structures with their specific catalytic, structural, and regulatory functions. Additionally, the module aims to cultivate advanced proficiencies in quantitative enzyme kinetics, laboratory bio-separation techniques, and predictive computational modelling frameworks, building a rigorous appreciation for how biochemical reactivity is precisely controlled in vivo.

4. Pre-requisite modules or specified entry requirements
Biology 112, Chemistry 117, Chemistry 215

5. Indicative content
Week 1. Principles of Biochemistry: The Chemical basis of life. Physical Biochemistry: Energy Conversion, Water, Osmosis, non-covalent bonds, pH and buffers, Cell membranes as hydrophobic barriers. Week 2. Nucleic Acid Structure & Function. Protein Structure and Folding. Week 3. Methods in Protein Biochemistry. Protein Functions. Week 4. Enzyme mechanics: function, kinetics and inhibition. Week 5. Revision (Nucleic acids, protein structure and function, enzyme function & kinetics). Week 6. Glycolysis. The Citrate Cycle. Week 7. Oxidative phosphorylation. Week 8. Carbohydrate structure & function. Week 9. Carbohydrate metabolism. Week 10. Lipid structure and function. Week 11. Metabolic integration & Final revision. <u>Indicative LAB experiments</u> Preparation of buffers The UV and Bradford assays for quantification of protein concentration Predicting protein structures with AlphaFold2 Effect of extraction conditions on enzyme activity Gel filtration chromatography SDS-PAGE/Coomassie Blue analysis of proteins Enzyme kinetics (Michaelis-Menten kinetic analysis) Enzyme inhibition

1. Factual information			
Module title	Biology 330 – Cell Biology and Histology		
Module tutor	Dr. Eleftheria Barlaka	Level	5
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This is a required module for all Biological Sciences majors. This module is designed to provide an understanding of the fundamental aspects of cell biology and tissue organization. The central object of study is the eukaryotic cell, its intracellular molecules, and the interactions between cells that result in the construction of multicellular organisms.

3. Aims of the module
This is a combined lecture and lab module that explores the relationship between structure and function at the cellular and tissue levels. The module will give the students an introduction to the structure and function of cells and cellular structures including the plasma membrane, cytoplasm, intracellular organelles, extracellular matrix, epithelia, and glands. Its overarching aim is to provide students with knowledge of the general organization and functions of the different cellular organelles, the diversity of animal and plant cells, and the cytophysiological characteristics that define the different tissues.

4. Pre-requisite modules or specified entry requirements
Biology 112, Anatomy 115

5. Indicative content
Week 1: Course overview. Overview of plant and animal tissues. Extracellular matrix. Multicellularity. Major Techniques in Histology and Immunohistochemistry. Week 2: Fundamentals of Plant Histology. Human embryology. Tissue Development and Growth. Tissue Repair and Regeneration. Week 3: Epithelial Tissue. Glands, Connective Tissue. Adipose & blood tissues. Week 4: Connective Tissue. Cartilage & bone tissues. Muscle tissue. Muscles & cardiovascular tissues. Week 5: Nervous tissue. Week 6: Introduction to Cellular Biology: Visualizing cell components. Introduction to The cell membrane: Structure Week 7: The cell membrane Function: Transport and electric properties. Intracellular Organisation. Week 8: Protein sorting. Intracellular membrane traffic Week 9: Metabolic compartmentation: Mitochondria and chloroplasts Week 10: Cell Signaling Introduction. Week 11: Cytoskeleton. Cell junctions and ECM. Course overview-revision for the Finals <u>Indicative Lab content</u> - Introduction to immunohistochemistry. - Microscopy of immunostainings. - Image acquisition and analysis for Immunostaining -Microscopic examination of human brain tissues -Human Tissues - staining and classification. -Experimental study and classification of cancer cells

1. Factual information		
Module title	Biology 340 – Neuroscience	
Module tutor	Dr. Iliana Michailidou	Level
Module type	Taught: Lecture/guided discussion	Credit value
Mode of delivery	100% face-to-face	
Notional learning hours	150 notional hours: 44 hrs lecture/tutorials, 106 hrs guided independent study.	

2. Rationale for the module and its links with other modules
This module serves as a primary intermediate gateway to neurobiology within the life sciences curriculum, bridging foundational Level 4 cellular biology and chemical principles with advanced physiological systems. It transitions students from basic cellular architectures to the complex, integrated network configurations unique to the nervous system. The curriculum systematically connects molecular signalling dynamics and synaptic plasticity with macro-level sensory processing, motor control, and higher-order behavioural states. By framing neural function through both classic electrophysiological theories and modern cognitive methodologies, this module equips students with the computational visualization skills, critical analytical habits, and research literacy required for specialized third-year biomedical options and postgraduate study in neurobiology and pharmacology.

3. Aims of the module
This module aims to provide a comprehensive, multi-level evaluation of the structural, physiological, and metabolic frameworks governing the human nervous system. It is designed to enable students to analyse the biophysical and electrochemical mechanisms underlying neuronal excitability, action potential propagation, and complex synaptic neurotransmission processes. Furthermore, the module facilitates a systematic appreciation of how discrete sensory inputs are transduced, processed, and translated into integrated motor outputs and behavioural responses. It also aims to cultivate critical cognitive skills in evaluating the neural substrates of higher-order cognitive functions, including learning algorithms, memory consolidation, and neuroplasticity. Ultimately, the module trains students to autonomously appraise, interpret, and synthesize primary literature, experimental datasets, and clinical case paradigms to support advanced scientific inquiry.

4. Pre-requisite modules or specified entry requirements
SNCB112, SNCB230, SNCC330

5. Indicative content
- Neuronal structure and diversity: cell types, morphology, and classification - Membrane potential and Voltage-gated ion channels; generation and propagation of action potentials - Electrical and chemical synapses; neuromuscular junction - Neurotransmitter synthesis, vesicular release, and receptor pharmacology - Ionotropic and metabotropic receptors; second messenger cascades - Synaptic modulation: facilitation, depression, and long-term plasticity - Gross anatomy of the brain: forebrain, midbrain, hindbrain, and spinal cord - General principles of sensory transduction and coding - The visual system: retina to V1, parallel processing streams - The auditory system: cochlea, auditory brainstem, and cortex - Somatosensory system: touch, pain, and proprioception - Motor Systems - Learning and memory: declarative vs. non-declarative systems - Emotion and the limbic system; fear conditioning and the amygdala - Neurodegenerative disorders: Alzheimer's and Parkinson's disease - Psychiatric disorders: depression, schizophrenia, and anxiety - Epilepsy: mechanisms of seizure generation and propagation - Introduction to neuroprotection and therapeutic strategies

1. Factual information			
Module title	Biology 350 – Microbiology and Infectious Diseases		
Module tutor	TBD	Level	5
Module type	Taught: Lecture/guided discussion/lab	Credit value	15
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	150 notional hours: 44 hrs lecture/tutorials, 106 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This module provides an intermediate, clinically focused exploration of medical microbiology and public health pathology, building systematically upon foundational principles of general biology and basic microbiology. It transitions students from descriptive microbiology to a sophisticated, mechanistic understanding of host-pathogen interactions. By examining bacteria, viruses, fungi, and parasites through the lens of population epidemiology and cellular virulence, the module establishes how microscopic entities compromise host homeostasis and bypass immune surveillance. Centralized around desk-based diagnostic simulations and real-world outbreak data, this course cultivates the clinical literacy, data-decoding capabilities, and epidemiological reasoning required for advanced third-year biomedical tracks and professional pathways in public health.

3. Aims of the module
This module aims to: • Provide a comprehensive, data-driven evaluation of the molecular and cellular mechanisms governing microbial virulence and host pathogenesis. • Enable students to analyze the multi-variable balances that dictate host-microbe equilibria and determine point-source outbreak vulnerabilities using historical and contemporary clinical case studies. • Develop advanced student capacities to interpret, decode, and evaluate raw clinical diagnostic profiles (including metabolic matrices, antibiograms, and molecular assays) without requiring wet laboratory execution. • Instill a critical appreciation for the physiological mechanisms of modern antimicrobial agents and the evolutionary trajectories of multidrug resistance pathways. • Cultivate professional standards in scientific literacy, scientific report writing, and evidence-based clinical presentation.

4. Pre-requisite modules or specified entry requirements
Biology 112, Biology 201

5. Indicative content
Week 1: Introduction to Medical Microbiology and Host Defenses Week 2: Mechanisms of Bacterial Pathogenesis: Entry and Adhesion Week 3: Pathogenic Actions of Bacteria: Toxins and Destructive Pathways Week 4: Evasion of Host Defenses and Biofilm Formation Week 5: Pathogenic Gram-Positive Cocci and Bacilli Week 6: Pathogenic Gram-Negative Cocci and Aerobic/Anaerobic Bacilli Week 7: Transmission of Infectious Microbial Diseases & Epidemiology Week 8: Mechanisms of Viral Pathogenesis Week 9: Basic Biology of Fungi and Parasitic Microorganisms Week 10: Commensal vs. Pathogenic Human Microflora & Diagnostic Identification Week 11: Epidemiological Outbreak Tracking

1. Factual information			
Module title	Biology 360 – Plant and Animal Biology and Biodiversity		
Module tutor	TBD	Level	5
Module type	Taught: Lecture/guided discussion/field work	Credit value	15
Mode of delivery	100% face-to-face		
Notional learning hours	150 notional hours: 44 hrs lecture/tutorials, 106 hrs guided independent study.		

2. Rationale for the module and its links with other modules	
This intermediate module provides a critical comparative framework within the biological sciences curriculum, building upon foundational Level 4 cellular biology and evolutionary principles to evaluate the structural, physiological, and ecological diversity of multicellular life. Situated at Level 5, the module bridges the gap between micro-level biological mechanisms and macro-level ecological dynamics. It transitions students from basic taxonomic classification to an advanced analysis of functional morphology, examining how plants and animals have independently evolved divergent structural solutions to overcome shared biophysical challenges, including fluid transport, gas exchange, structural support, and reproductive dispersal. By investigating these adaptive frameworks alongside contemporary biodiversity metrics and biogeographical distribution patterns, this module provides the essential analytical skills, field literacy, and comparative reasoning required for specialized Level 6 tracks in ecology, conservation biology, and environmental management.	

3. Aims of the module
This module aims to: - Provide a comprehensive, comparative analysis of the evolutionary trajectories, phylogenetic relationships, and structural innovations that define plant and animal lineages. - Enable students to evaluate the biophysical and physiological mechanisms governing form and function, including nutrient acquisition, internal transport architectures, and homeostatic regulation in both kingdoms. - Facilitate a systematic understanding of global biodiversity patterns, exploring the ecological, geological, and anthropogenic factors that influence species distribution and community structure. - Train students in intermediate-level practical competencies, including specialized specimen identification, functional morphological mapping, and the application of quantitative biodiversity indices. - Cultivate critical academic skills in synthesizing primary scientific literature, interpreting complex ecological datasets, and communicating organismal biology principles using precise technical nomenclature.

4. Pre-requisite modules or specified entry requirements
Biology 113

5. Indicative content
- Week 1: Phylogenetic reconstruction, the Tree of Life, and macro-evolutionary transitions from multicellularity to land colonization and complex animal body symmetry. - Week 2: Physical scaling laws, surface-area-to-volume relationships, and biophysical constraints governing metabolic rates and structural support in terrestrial and aquatic media. - Week 3: Comparative autotrophic and heterotrophic strategies, plant root architectures, mycorrhizal symbioses, animal digestive tract specializations, and trophic efficiencies. - Week 4: Plant xylem tension-cohesion dynamics, phloem pressure-flow translocation, open and closed animal circulatory networks, and convective fluid dynamics. - Week 5: Stomatal mechanics, transpiration trade-offs, internal plant aeration networks, counter-current gill exchange, insect tracheal systems, and vertebrate lung ventilation. - Week 6: Biochemical adaptations to osmotic stress in halophytes and xerophytes, animal osmoregulatory organs, and the synthesis and excretion of ammonia, urea, and uric acid. - Week 7: Plant phototropism, gravitropism, phytohormone signaling cascades, evolutionary nerve networks, and animal sensory modalities coordinating behavioral responses.

5. Indicative content	
-	Week 8: Alternation of generations, evolution of pollination and seed dispersal mutualisms, internal versus external animal fertilization, and r-selection versus K-selection trajectories.
-	Week 9: Biogeographical distribution patterns, macro-ecological rules, latitudinal diversity gradients, historical glaciation events, continental drift, and global biome classification systems.
-	Week 10: The competitive exclusion principle, resource partitioning frameworks, fundamental versus realized niches, predator-prey dynamics, herbivory, parasitism, and keystone species configurations.
-	Week 11: Practical deployment of quadrat matrices, belt transects, and mark-recapture metrics alongside the mathematical calculation of Shannon-Wiener and Simpson's biodiversity indices, combined with an evaluation of anthropogenic drivers of contemporary extinctions and modern nature recovery frameworks.

1. Factual information			
Module title	Biology 370 – Molecular Basis of Behaviour		
Module tutor	TBD	Level	5
Module type	Taught: Lecture/guided discussion	Credit value	15
Mode of delivery	100% face-to-face		
Notional learning hours	150 notional hours: 44 hrs lecture/tutorials, 106 hrs guided independent study.		

2. Rationale for the module and its links with other modules
This intermediate elective module builds directly upon the neuroanatomical and electrophysiological foundations established in Level 5 Neuroscience, transitioning students from general neural network configurations to a highly specialized, multi-variable analysis of how polygenic networks, molecular signalling cascades, and epigenetic modifications interact to drive behavioural phenotypes. The curriculum systematically deepens prior knowledge by examining how environmental factors trigger intracellular alterations that modulate behavioural systems like aggression, mating, circadian rhythms, and social interaction across major model organisms.

3. Aims of the module
The module aims to provide a framework-driven evaluation of the molecular, genetic, and neuroendocrine pathways driving behaviour, enabling students to analyse polygenic traits, neuromodulation, and epigenetic adaptation. Furthermore, it develops critical cognitive and practical skills in analysing experimental behavioural genetics datasets and appraising primary scientific literature, cultivating professional standards in research-informed academic communication.

4. Pre-requisite modules or specified entry requirements
Biology 230, Biology 340

5. Indicative content
Introduction to Molecular Behavioural Neuroscience Synaptic Plasticity and Memory based on signaling Neuromodulation and Behaviour - Dopamine and reward: VTA-NAc pathway, D1/D2 receptor signalling - Serotonin and mood regulation: raphe nuclei, 5-HT receptor subtypes - Norepinephrine and arousal/stress responses - Neuropeptides: oxytocin, vasopressin, and social behaviour Hormonal Control of Behaviour - Sex hormones and sexual differentiation of the brain - Testosterone, aggression, and dominance hierarchies - Cortisol, HPA axis, and stress-induced behavioural changes - Neuroendocrine regulation of parental behaviour Genetic Architecture of Behaviour - Heritability, quantitative genetics, and behavioural genomics

5. Indicative content
- GWAS and candidate gene studies in human behavioural traits - Epigenetics and transgenerational inheritance of behaviour - Gene-environment interactions Molecular Basis of Behavioural Disorders - Molecular underpinnings of addiction: ΔFosB, synaptic remodelling - Autism spectrum disorder: synaptic scaffolding proteins, SHANK, NRXN - Anxiety and fear circuits: amygdala, GABA, and stress neuropeptides

1. Factual information			
Module title	Biology 410 - Epidemiology & Public Health		
Module tutor	TBD	Level	6
Module type	Taught: Lecture/guided discussion	Credit value	15
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	150 notional hours: 44 hrs lecture/tutorials, 106 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This final-year elective module delivers a rigorous investigation into the statistical methods, research designs, and surveillance mechanisms used to monitor and manage health trends in human populations. Moving beyond descriptive cellular biology, this course challenges students to evaluate health data on a population-wide scale. Students analyse how complex environmental, genetic, and behavioural risk factors interact to drive disease distribution. This module provides the critical data literacy and analytical skills required for professional careers or postgraduate research in global healthcare, veterinary epidemiology, and clinical trials.

3. Aims of the module
The module aims to deliver an advanced integration of epidemiological research methods, risk assessment, and outbreak management protocols. It focuses on developing students' capacity to critically select and justify observational or experimental frameworks to investigate complex population health events. Additionally, the course trains students to identify and mitigate systematic errors—such as selection bias, information bias, and confounding variables—and prepares them to appraise public health policies by balancing empirical evidence against social, economic, and ethical constraints.

4. Pre-requisite modules or specified entry requirements
Biology 112, Statistics 211

8. Indicative content	
Week	TOPICS
1	Foundations of Epidemiology and Public Health Historic Development and Modern Epidemiology Measures of disease frequency
2	Measures of association. Relative Risk (RR). Attributable Risk Practicing epidemiological measures. Standardization
3	Survival analysis and life Tables Practicing Descriptive epidemiology. Case reports, case series, cross-sectional and epidemiological studies.
4	Overview of epidemiological study design Experimental studies

5	Cohort studies Case control studies Applications and practicing with epidemiological study design. Error and Bias
6	Revision for the midterm, midterm exam
7	Confounding Practicing confounding, error, bias Critical Review of Epidemiological Studies II
8	Effect Measure Modification Causation Practicing effect measure modification and causation
9	Screening in Public Health Practice Screening in Public Health Practice II
10	Clinical Epidemiology Epidemiology of Infectious Diseases - Molecular Epidemiology applications and papers Field Epidemiology
11	Prevention, intervention and control of diseases Environmental Health

1. Factual information			
Module title	Biology 420 – Environmental Health and Toxicology		
Module tutor	TBD	Level	6
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This advanced module serves as a critical Level 6 elective within the Biological Sciences major, synthesizing foundational knowledge in biochemistry, physiology, and ecology to address complex contemporary challenges at the intersection of anthropogenic activity, ecosystem integrity, and human public health. Positioned in the final year, the module moves beyond descriptive toxicological profiling to demand a critical, multi-scalar evaluation of xenobiotic fate, transport, and cellular toxicokinetics. Students will critically appraise the molecular, epigenetic, and systemic pathologies induced by chronic and acute exposures to environmental, occupational, and pharmaceutical stressors. By emphasizing the interpretation of incomplete epidemiological data, complex dose-response dynamics, and modern risk management methodologies, this module cultivates the high-level analytical autonomy, mechanistic reasoning, and data literacy required for professional pathways in environmental consultancy, clinical research, public health policy, and postgraduate ecotoxicological study.

3. Aims of the module
The primary goal of this module is to provide students with a rigorous, multi-scalar understanding of the fundamental principles governing the environmental fate, transport, and biochemical transformations of pollutants, while simultaneously elucidating how anthropogenic activities alter ecosystem functions and drive complex public health outcomes. To achieve this, the module focuses on cultivating a comprehensive mastery of how the body's internal biochemical, physiological, and toxicokinetic mechanisms operate to metabolize, distribute, and eliminate toxic exposures, drugs, and poisons. Furthermore, the course aims to develop the advanced analytical autonomy required to critically evaluate modern exposure control measures, assess multi-variable dose-response relationships, and synthesize current toxicological literature to address unpredictable risk management challenges in occupational, community, and residential settings.

4. Pre-requisite modules or specified entry requirements

Chemistry 117, Chemistry 215, Biology 330

5. Indicative content

Week 1: Environmental Kinetics & Transport. Thermodynamics and physical chemistry governing the environmental fate, biotransformation, and bioaccumulation of toxicants across atmospheric, aquatic, and terrestrial matrices.

Week 2: Pollutant Dynamics & Exposure Classes. Systematic chemical classification of natural and anthropogenic hazards, workplace exposures, industrial emissions, and micro-environmental partitioning.

Week 3: Xenobiotic Toxicology & Dose Dynamics. Mechanisms of heavy metal coordination, pesticide toxicity, and biological poisons, modeled via conventional, hormetic, and non-monotonic dose-response curves.

Week 4: Toxicokinetics: Absorption & Partitioning. Biophysical transport across biological barriers, passive diffusion kinetics, active cellular transport networks, and quantitative tissue distribution modeling.

Week 5: Toxicokinetics: Clearance & Regulation. Phase I/II metabolic pathways, renal and hepatic elimination mechanics, and a critical audit of global safety legislation and risk management frameworks.

Week 6: Midterm & Chemical Carcinogenesis. Midterm Examination. Molecular etiology of genotoxic and epigenetic oncogenesis, DNA damage cascades, and altered transcriptional profiles.

Week 7: Oncogenic Networks & Hepatotoxicity. Receptor-mediated cell-cycle disruption and target-organ pathology, focusing on metabolic susceptibility, steatosis, and necrotic cascades within hepatic tissues.

Week 8: Nephrotoxicity & Endocrine Disruption. Physiological mechanics of renal filtration failure and receptor-mediated toxicity cascades induced by environmental endocrine-disrupting chemicals (EDCs).

Week 9: Respiratory & Reproductive Pathologies. Inhalation toxicology, lung fibrosis networks, and xenobiotic disruption of gametogenesis, developmental endpoints, and reproductive organ systems.

Week 10: Advanced Neurotoxicity & Bioassays. Blood-brain barrier vulnerability, synaptic transmission interference, axonal degeneration pathways, and modern in vitro and in vivo testing methodologies.

Week 11: Case Synthesis & Portfolio Defense. Multivariate data synthesis, evaluation of emerging contaminants, and the formulation of professional regulatory risk assessments.

1. Factual information

Module title	Biology 430 – Biotechnology Principles and Applications		
Module tutor	Dr. Maria Kalamaki	Level	6
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

This module provides an advanced investigation into the contemporary technologies utilized in the analysis and genetic engineering of organisms. It demands a critical integration of multi-omic allied technologies (proteomics, transcriptomics, and cell culture) and contextualizes commercial applications through an industrial site visit. Furthermore, students autonomously implement model-guided experimental designs to address complex biological problems.

3. Aims of the module

Critically appraise modern molecular biotechnology methods utilized to genetically engineer bacteria, plants, and animals. Integrate principles of proteomics, transcriptomics and cell culture and understand their utility and applications in industrial biotechnology. Evaluate the statistical validity of experimental data, defending the requirement for robust replication and structural repetitions in scientific analysis. Demonstrate autonomous competency in executing complex recombinant DNA transformations, alongside advanced protein isolation and biophysical characterization workflows. Challenge learners to analyse multi-variable datasets and collaborate across disciplines to solve open, contemporary biotechnological and research challenges.

4. Pre-requisite modules or specified entry requirements

Biology 112, Chemistry 117, Biology 230

5. Indicative content

Lecture concepts include:

- Advanced Molecular Foundations: Critical review of the "Central Dogma" through the lens of epigenetics, non-coding RNAs, and advanced mechanisms of horizontal gene transfer in prokaryotes and eukaryotes.
- Next-Generation Genetic Engineering: assembly methods, sophisticated vector systems including viral delivery for gene therapy, and the design of synthetic genetic circuits.
- Precision Genome Editing: Comprehensive study of CRISPR/Cas systems, ZFNs, and TALENs, with a focus on therapeutic applications.
- "Omics" Technologies: Integration of transcriptomics, proteomics, and metabolomics; single-cell sequencing technologies and the application of bioinformatics in "Big Data" biological analysis.
- Synthetic Biology & Metabolic Engineering: Design and construction of new biological parts and pathways; microbial cell factories for the production of high-value biofuels and pharmaceuticals.
- Applied Biotechnology in Medicine, the Environment and Agriculture: mRNA vaccine technology, personalized medicine, and CAR-T cell therapy, eDNA (environmental DNA) for real-time biodiversity monitoring, precision breeding, CRISPR-edited crops.
- Bioethics and Policy: Navigating the "Dual-Use" dilemma, biosecurity, the ethics of human germline editing, and the regulatory landscape of emerging biotechnologies.

Inquiry-Based Laboratory Experiments: The laboratory component is delivered through inquiry-based learning, where students define variables, design experimental controls, and troubleshoot complex workflows rather than following "cookbook" recipes. Explorations may include:

- Gene Expression Analysis: Comparative transcriptomics using RNA isolation and Real-Time PCR to investigate cellular responses to environmental stressors.
- Functional Metagenomics: eDNA sampling and isolation from local environments to characterize microbial community structure via high-throughput sequencing.
- Precision Engineering: Application of CRISPR/Cas9 gene editing in a model organism, followed by phenotypic and genotypic validation.
- Advanced Proteomics: Inquiry into protein-protein interactions using Western Blotting, ELISA, and Immunodiffusion to map signaling pathways.
- Bioinformatics Workflow: Student-led sequence analysis and structural modeling of recombinant proteins using industry-standard computational tools.

1. Factual information

Module title	Biology 440 – One Health and Disease Ecology		
Module tutor	TBD	Level	6
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	100% face-to-face		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale for the module and its links with other modules

This final-year module critically evaluates disease as an ecological and One Health phenomenon emerging from interactions among hosts, pathogens, vectors, reservoirs, environments, and human systems. Students analyse and model how disease processes unfold across complex scales—from within-host molecular responses to population dynamics, community interactions, landscapes, and public health policy frameworks. The course enables students to synthesize multi-sectorial, interdisciplinary evidence and translate it into actionable disease surveillance, prevention, and management strategies.

3. Aims of the module

The module aims to provide an advanced integration of ecological theory, epidemiological modelling, and One Health systems perspectives to analyse infectious and environmentally mediated diseases. It focuses on developing students'

3. Aims of the module
capacity to critically investigate complex disease-related questions using empirical field observations, laboratory methods, spatial analysis, and quantitative simulation. Additionally, it aims to prepare students to appraise and defend real-world disease-management strategies by balancing scientific efficacy against environmental, ethical, and socio-economic trade-offs.

4. Pre-requisite modules or specified entry requirements
Biology 113, Statistics 211

5. Indicative content
- Origins and scope of One Health; links among human, animal, plant, and environmental health - Disease ecology fundamentals: hosts, pathogens, parasites, vectors, reservoirs, spillover, persistence, emergence - Epidemiological measures: incidence, prevalence, case fatality, force of infection, R0, herd effects - Transmission modes: direct, environmental, vector-borne, food-borne, water-borne, sexually transmitted, multi-host and reservoir dynamics - Host-pathogen coevolution, virulence evolution, resistance and tolerance, immunoecology - Population and community disease ecology: superspreaders, contact networks, coinfection, dilution/amplification, biodiversity–disease relationships - Spatial and landscape disease ecology: habitat fragmentation, movement, corridors, urbanization, climate and seasonality, GIS-based risk mapping - Surveillance and outbreak investigation: sampling, diagnostics as data, uncertainty, bias, and interpretation - Intervention ecology: vaccination, vector control, culling, habitat management, biosecurity, communication, elimination and eradication - Equity, ethics, Indigenous/community knowledge, occupational exposures, food systems, and policy trade-offs in One Health decision-making <u>Indicative lab / field / computational concepts</u> - Field and biosafety induction, hazard assessment, PPE selection, decontamination, notebooking, metadata - One Health systems mapping using case-based problem framing and stakeholder analysis - Outbreak metrics, epidemic curves, R0 estimation, and introductory SIR/SEIR simulation in R - Contact-network analysis and superspreader interpretation using curated datasets - GIS-based mapping of vector/host distributions, environmental correlates, and spatial hotspots - Low-risk field audit of host–vector–environment interfaces, habitat conditions, and anthropogenic risk factors - Specimen-based or image-based parasite/vector identification and life-cycle interpretation using preserved or approved teaching materials - Community/ecosystem disease analysis using biodiversity, coinfection, reservoir, or climate datasets - Scenario modelling of interventions and preparation of a One Health disease-management brief - Capstone proposal, data collection/analysis, poster, and oral defence

1. Factual information			
Module title	Biology 445 – Field Methods and Ecological Modelling		
Module tutor	Dr. Andreas Anestis	Level	6
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	100% face-to-face		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale for the module and its links with other modules

The module integrates ecological inquiry in the field with quantitative analysis and model-based interpretation. The course is designed for students who are ready to move beyond descriptive ecology into research design, inference, evaluation, and creation. It adopts the pedagogic logic common to upper-division benchmark courses: students generate questions, collect and steward field data, analyze those data computationally, critique assumptions, and complete an independent or team-based project.

3. Aims of the module

The module aims to systematically develop students' capacity to design methodologically rigorous and defensible ecological studies across both terrestrial and aquatic environments, fostering a strong foundation in research planning and execution. It further seeks to strengthen advanced quantitative reasoning by engaging students with ecological statistics, data visualization techniques, and the construction and interpretation of analytical models, thereby enhancing their ability to interrogate complex ecological datasets. Emphasis is also placed on the integration of empirical field observations with established ecological theory and modelling outputs, enabling students to generate robust inferences and support evidence-based decision-making in ecological contexts. Ultimately, the module is designed to prepare students for the intellectual and practical demands of final-year dissertations, research internships, professional conservation practice, and advanced postgraduate study.

4. Pre-requisite modules or specified entry requirements

Biology 113, Statistics 211, Biology 310

5. Indicative content

Lectures

- Ecology as an inferential science: observation, mechanism, prediction, and uncertainty
- Sampling design, replication, controls, detectability, pseudoreplication, and scale
- Field ethics, permitting, risk assessment, and data integrity
- Vegetation and habitat surveys across environmental gradients
- Animal survey methods, abundance estimation, occupancy, and behaviour sampling
- Aquatic ecology, bioassessment, and environmental monitoring
- Disturbance, succession, resilience, and ecological change
- Biodiversity metrics, community structure, and species accumulation
- Spatial ecology: site selection, mapping, habitat structure, and landscape context
- Population models: exponential, logistic, density dependence, and stage structure
- Species-interaction models: competition, predator-prey, mutualism, and host-parasite
- Statistical modelling of ecological data: visualization, GLMs, model selection, validation
- Scenario analysis, uncertainty, and ecological forecasting
- Scientific communication for research and applied audiences

Indicative lab / field / computational concepts

- Field safety, notebooking, site orientation, and observational practice
- Question development and sampling design workshop
- Quadrat, transect, and habitat characterization methods
- Plant identification and disturbance/succession case study
- Mark-recapture or capture-history simulation
- Bird point counts and/or acoustic survey design
- Camera trapping and mammal sign survey design
- Aquatic macroinvertebrate, fish/minnow trap, and water-quality sampling
- Invertebrate transects, diversity estimation, and species accumulation

5. Indicative content

- GPS/GIS mapping and spatial data handling
- Independent project proposal, data collection, analysis, and report

1. Factual information

Module title	Biology 450 – Immunology		
Module tutor	Dr. Iliana Michailidou	Level	6
Module type	Taught: Lecture/guided discussion/practical learning	Credit value	15
Mode of delivery	Required. Face to face Lecture/guided discussion/ practical learning		
Notional learning hours	150 notional hours: 49.5 hrs lecture/tutorials, 100.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

This module is a required course for all Biological Sciences majors, building on foundational concepts from cell biology, genetics, and biochemistry. Instead of a broad overview, this final-year course focuses on the precise molecular and cellular mechanisms that regulate human immunity. By exploring immune system organization, signalling pathways, humoral and cell-mediated responses, and hypersensitivities, students will analyse how the body maintains homeostasis. The course directly connects basic biological theory to clinical pathology, preparing students for professional work or postgraduate studies in medicine, research, and biotechnology.

3. Aims of the module

The primary aim of this module is to give students a deep, mechanism-driven understanding of how the immune system responds to pathogens, environmental challenges, and cancers. Students will evaluate the structural and genetic features of immune cells to understand both protective immune responses and the molecular triggers behind immune failures, such as autoimmunity and immunodeficiencies. Additionally, the course aims to teach students how infectious agents evade natural defences, while introducing the scientific principles behind modern targeted immunotherapies, transplantation matching, and vaccine design.

4. Pre-requisite modules or specified entry requirements

Biology 112, Biology 230, Biology 330

5. Indicative content

Week 1: Key characteristics of Immunology a brief overview. Innate Immunity- The complement system. Lab demonstration of pathological tissues with Multiple sclerosis associated complement activation (Lab Microscopy)

Week 2: Class work on Case Study regarding complement activation and Hereditary Angioedema. Cellular mechanisms of Innate Immunity for pathogen recognition.

Week 3: Adaptive Immunity. Antibody structure (BCR)/ Antigen recognition by T cells (TCR-MHC interactions). Introduction to T-cell mediated Immunity activation.

Week 4: 1st Group presentation. Class work on case study regarding MHC. T-cell mediated Immunity.

Week 5: Introduction to Humoral response.

Week 6: Humoral Immune response. Midterm exam class revision (Practice Quiz).

Week 7: Immunology of pathogens and infectious diseases.

Week 8: Allergies and Hypersensitivity

Week 9: 2nd Group presentation. Class work on case study regarding the case of Hypersensitivity: Allergic Asthma. Introduction to Autoimmunity.

Week 10: Transplantation. 3rd Group presentation. Class work on case study regarding Multiple Sclerosis.

Week 11: 4th Group presentation. Vaccination and Cancer Immunology. Course overview and class revision (Practise Quiz)

1. Factual information

Module title	Biology 460 – Drug Discovery and Development		
Module tutor	Dr. George Leonidis	Level	6
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	100% face-to-face		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale for the module and its links with other modules

This final-year elective builds directly on what students learned in Organic Chemistry and Biochemistry to look at how modern drugs are actually discovered and made. The course combines medicinal chemistry, pharmacology, and computer-aided drug design to show students how small changes to a chemical structure alter how a drug works in the body. By connecting chemical structures with biological actions, the module gives students the practical data skills and analytical training they need for jobs or further study in the pharmaceutical industry, biotechnology, and medical research.

3. Aims of the module

The main aim of this module is to give students a clear, practical understanding of the entire drug discovery process, tracking a drug from the moment a biological target is found all the way to choosing a final clinical candidate. The course is designed to help students use structure–activity relationships (SAR) to systematically improve and optimize drug leads. Additionally, it aims to teach students how to read and analyse ADME/PK/PD data sheets and use standard computer docking and visualization tools to model how ligands interact with target proteins. Finally, the course aims to help students evaluate real-world pharmaceutical case studies so they can see how chemical changes must balance a drug's curing power against its potential side effects, metabolic stability, and toxic risks.

4. Pre-requisite modules or specified entry requirements

Biology 112, Anatomy 115, Biology 230, Biology 320, Biology 330, Chemistry 117, Chemistry 215 & 216, Biology 310

5. Indicative content

Lectures

- Target Identification & Biomolecules as Targets: Industrial discovery pipelines, high-resolution structural genomics, and multi-omics screening; Structural biology of GPCRs, protein kinases, ligand-gated ion channels, and nucleic acids.
- Thermodynamics of Drug-Target Interactions: Quantitative molecular mechanics and binding affinities; Atomic-resolution forces; Desolvation mechanics and thermodynamic cavity-water displacement penalties during docking.
- Structure-Activity Relationships (SAR) & Bioisosterism: Multi-variable Hansch Equation modeling using electronic, lipophilic and steric parameters; Classical/non-classical bioisosteric modifications; Fluorination tactics to block metabolic oxidation zones and shift lipid solubility profiles.
- Computational Drug Design & Virtual Screening: Chemoinformatics filters: Lipinski's Rule of 5, Veber parameters, and lead-like criteria; Molecular docking algorithms: grid generation, genetic/Monte Carlo search routines; *de novo* design and 3D geometric pharmacophore mapping from active scaffolds.
- Pharmacokinetics (ADME): Metabolism & Excretion
- Advanced Pharmacodynamics (PD)
- Toxicology Foundations: In silico and in vitro toxicological safety screening: DILI indices, genotoxicity, and hERG cardiotoxicity assays.
- Design of Antibacterial Agents
- Design of Antiviral Agents
- Design of Anticancer Agents

Indicative LAB experiments

- Computational design of bioactive compounds
- Computational docking
- Enzyme Inhibition
- Hydrolysis of Esters and Amides: Drug Stabilities

5. Indicative content	
-	Partition Coefficient (LogP) in common drugs

1. Factual information			
Module title	Biology 470 – Epigenetics and Genome Regulation		
Module tutor	TBD	Level	6
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	100% face-to-face		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale for the module and its links with other modules	
This final-year elective module builds directly on standard genetics and molecular cell biology courses. It moves past static DNA sequence mutations to explore how structural modifications to DNA and chromatin remodelling control gene expression without changing the genetic code itself. Students evaluate how cellular identities are established during development, how epigenetic marks are maintained or rewritten, and how environmental changes cause epigenetic failures in diseases like cancer. The module connects wet-lab observations with high-throughput computational tools, providing the critical data literacy needed for jobs or research in modern biotechnology and personalized medicine.	

3. Aims of the module	
The module aims to provide a clear, advanced integration of molecular chromatin biology and computational genome analysis. It focuses on teaching students how to investigate gene regulation using real sequencing datasets, including transcription factor tracking and DNA methylation mapping. Additionally, the course prepares students to evaluate real-world clinical and environmental research papers, weighing structural experimental data against the computational challenges of processing large-scale multi-omics pipelines.	

4. Pre-requisite modules or specified entry requirements	
Biology 112, Biology 230, Biology 330	

5. Indicative content	
<u>Lectures</u> - DNA packaging: nucleosome physics and chromatin architecture. - DNA methylation: mechanisms of maintenance, de novo methylation, and active demethylation pathways. - Histone modifications: "writers, erasers, and readers" of the histone code. - Spatial Architecture and Long-Range Regulation: Non-coding RNAs (miRNAs, lncRNAs) and their roles in gene silencing and X-chromosome inactivation. - 3D genome layout: topologically associating domains (TADs), loops, and CTCF insulator boundaries. - Epigenetic reprogramming: wiping and resetting marks in germline cells and early embryos. - Environmental epigenetics: how diet, toxins, and stress alter chromatin states. - Cancer epigenetics: global loss of methylation, localized gene silencing, and the discovery of onco-histones. - Introduction to epigenetic drugs: HDAC inhibitors and DNA methyltransferase blockers. <u>Indicative Lab Experiments</u> Wet-Lab Experiments - Chromatin Isolation and Density Sorting - Bisulfite Conversion of Genomic DNA - Methylation-Specific PCR (MSP) Computational Labs - Raw Next-Generation Sequencing (NGS) Data Quality Control	

5. Indicative content	
- Bisulfite Sequencing Alignment and Mapping - Chromatin Peak-Calling and Genome Browser Visualization	

1. Factual information			
Module title	Biology 480 – Microbiome and Human Health		
Module tutor	TBD	Level	6
Module type	Taught: Lectures / Seminars / Integrated Lab Workshops	Credit value	15
Mode of delivery	100% face-to-face		
Notional learning hours	150 notional hours: 30 hrs lecture/tutorials, 16 h supervised practical workshops, 104 hrs guided independent study.		

2. Rationale for the module and its links with other modules
This final-year elective module investigates the complex symbiotic ecosystems existing between human hosts and their resident microbial communities. Moving past traditional pathogenic microbiology, the module challenges students to evaluate how the genome, proteome, and metabolome of the human microbiome act as a dynamic organ that regulates systemic physiology.

3. Aims of the module
The module aims to provide a clear, advanced integration of molecular microbial ecology, clinical pathology, and bioinformatic genome analysis. It focuses on teaching students how to investigate microbial population dynamics using real high-throughput datasets, tracking shifts from homeostatic states to disease-associated dysbiosis. Additionally, the course prepares students to evaluate real-world clinical trials and therapeutic interventions—such as prebiotics, probiotics, and fecal microbiota transplantations (FMT)—while weighing experimental molecular data against institutional bioethical regulations.

4. Pre-requisite modules or specified entry requirements
Biology 230, Biology 330

5. Indicative content
An introduction to human microbiome Emerging tools for understanding the human microbiome Structure, functions, and diversity of the healthy human microbiome An overview of cancer and the human microbiome Gut microbiota in gastrointestinal diseases Gut dysbiosis and metabolic diseases Gut microbiome and disease: type 2 diabetes, non-alcoholic fatty liver disease Respiratory tract microbiome and pneumonia Human microbiome and cardiovascular diseases Hepatic drug metabolism and gut microbiome Microbiome-based therapeutics: Opportunity and challenges <u>Indicative Lab Experiments</u> (16 Hours Integrated) - Microbial DNA Isolation & Quantitation: Extract high-quality genomic DNA from complex mixed-culture simulated stool or fermenter samples followed by spectrophotometric check (Qubit). - 16S rRNA Library Preparation: Execute PCR amplification of the 16S rRNA gene and barcoding, magnetic bead purification, and sequencing using the MinION platform. - Taxonomic Mapping & Diversity Metrics: Running sequence variant tools (QIIME2, DADA2, Epi2me) to group amplicon sequence variants (ASVs), assign taxonomic identities from reference databases (SILVA/GreenGenes), and calculate alpha-diversity (Chao1 index) and beta-diversity (PCoA plots).

1. Factual information			
Module title	Biology 490 – Neurobiology of Perception and Decision Making		
Module tutor	TBD	Level	6
Module type	Taught: Lecture/guided discussion	Credit value	15
Mode of delivery	100% face-to-face		
Notional learning hours	150 notional hours: 49.5 hrs lecture/tutorials, 100.5 hrs guided independent study.		

2. Rationale for the module and its links with other modules
This module is situated at the advanced level of the Biological Sciences degree programme and builds upon foundational knowledge in cell biology, molecular biology, and introductory neuroscience. It addresses the neurobiological mechanisms that link sensory experience to behavioural output, with particular emphasis on how neural circuits process perceptual information and translate it into decisions. The module integrates findings from neurophysiology, computational neuroscience, and cognitive neuroscience, equipping students with the conceptual tools to critically evaluate primary literature in these fields. It is designed for students who wish to specialise in neuroscience, biomedical research, or related disciplines.

3. Aims of the module
This module aims to provide students with an advanced understanding of the neurobiological principles governing sensory perception and decision-making. Students will examine how sensory stimuli are encoded and processed across multiple stages of the central nervous system, how neural circuits evaluate and integrate information, and how decisions are generated and refined through experience.

4. Pre-requisite modules or specified entry requirements
Biology 230, Biology 330, Biology 340

5. Indicative content
<u>Fundamentals of Sensory Encoding</u> <u>Visual Perception and Cortical Processing</u> - Retinal processing and the lateral geniculate nucleus - Primary visual cortex (V1): orientation selectivity, spatial frequency - Ventral and dorsal visual streams; object recognition and spatial processing - Perceptual grouping, figure-ground segregation, and top-down modulation <u>Auditory and Somatosensory Systems</u> - Tonotopic organisation of the auditory cortex; sound localisation - Somatosensory pathways; mechanoreceptors and the somatosensory cortex - Multimodal integration and crossmodal plasticity <u>Attention and Perceptual Modulation</u> - Selective and divided attention; neural correlates of attentional selection - Top-down vs. bottom-up attention; spatial and feature-based attention - Role of the prefrontal and parietal cortices in attentional control <u>Neural Basis of Decision Making</u> - Signal detection theory: sensitivity and criterion - Evidence accumulation models (drift diffusion model, race models) - Neural correlates of decision formation: LIP, PFC, basal ganglia - Speed-accuracy trade-offs and their neural substrates <u>Learning, Reward, and Adaptive Decision Making</u> - Reinforcement learning and dopaminergic reward prediction - Role of the orbitofrontal cortex and anterior cingulate in value-based decisions

5. Indicative content
- Plasticity in perceptual decision circuits; experience-dependent learning

1. Factual information			
Module title	Biology 493 - Thesis I (Capstone Project I)		
Module tutor	Dr. Maria Kalamaki	Level	6
Module type	Taught: Lecture/guided discussion	Credit value	15
Mode of delivery	Required. Face to face Lecture/guided discussion		
Notional learning hours	150 notional hours: 49.5 hrs lecture/tutorials, 100.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This course is the first phase of a two-part capstone project that marks the culmination of the undergraduate Biological Sciences program. This course is designed to transition students into independent investigators by requiring the autonomous synthesis of concepts and experimental competencies developed throughout their degree. This first phase focuses entirely on problem identification, systematic literature evaluation, research design, and formal proposal development, establishing the theoretical framework for the experimental execution in Biology 494.

3. Aims of the module
The primary aim of this course is to provide students with the framework to execute a self-directed, rigorous scientific investigation into a defined biological problem. The course aims to challenge students to formulate a testable scientific thesis, design a robust and ethically sound experimental or analytical methodology, and compile their research design into a comprehensive project proposal. Additionally, it aims to refine advanced scientific communication skills through both formal academic writing and professional oral defense.

4. Pre-requisite modules or specified entry requirements
Senior Status

5. Indicative content
Research Formulation: The scientific method; converting broad biological observations into bounded, testable hypotheses. Information Retrieval and Synthesis: Advanced literature search matrices across scientific databases (PubMed, Scopus, Web of Science); citation management software; execution of critical, thematic literature reviews. Experimental and Analytical Design: Selection of methodologies; active mapping of experimental controls, replication strategies, and sampling methodologies; minimization of confounding variables and investigative bias. Research Governance and Ethics: Research integrity; ethical implications of biological, animal, or human data collection; health and safety risk assessments; data storage regulations. Project Management: Strategic milestone mapping using Gantt planning; predictive risk assessments and engineering active contingency pathways. Dissemination Design: Scientific poster layout techniques; academic abstract composition; structural slide architecture and rhetorical mechanics for viva-voce style defenses.

1. Factual information			
Module title	Biology 494 - Thesis II (Capstone Project II)		
Module tutor	Project supervisors (various faculty)	Level	6
Module type	Taught: Guided discussion/Laboratory	Credit value	15
Mode of delivery	Required. Face to face Guided discussion/ supervised lab work		
Notional learning hours	150 notional hours: 22 hrs. lecture/tutorials, 55 hrs. supervised lab work and reporting , 73 hrs. guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This course is the second and concluding phase of the two-part capstone project series. Having formulated a theoretical proposal in Biology 493, students in Biology 494 must demonstrate investigative autonomy by executing, troubleshooting, and validating their primary experimental or data-driven design. This final stage measures the synoptic integration of a student's biological knowledge and practical competencies, demanding that they generate high-quality scientific data, apply advanced analytical skills, and compile a formal dissertation that stands up to peer and faculty cross-examination. Where a student's experimental or data collection work is not complete by the end of the 8th semester, completion of Biology 494 may be extended into the following summer term, subject to approval by the supervising faculty member.

3. Aims of the module
The primary aim of this course is to challenge students to autonomously carry out a sustained, ethically approved, primary empirical investigation to address a defined biological problem. The module aims to equip students with the skills required to systematically compile large data arrays, troubleshoot method failures, execute rigorous quantitative analyses, and formulate evidence-based conclusions within the wider scientific context. Additionally, it aims to establish professional-grade dissemination skills through the production of a standard-compliant dissertation, a public scientific poster exhibition, and a formal oral defense.

4. Pre-requisite modules or specified entry requirements
Senior Status

5. Indicative content
Phase 1: Optimization & Assay Validation - Instrument calibration, extraction protocol adjustments, reagent titration, and baseline verification assays to ensure data reproducibility. Phase 2: Primary Data Collection & Experimental Replication - Execution of sequential sample processing arrays, cell culture or environmental sampling runs, parallel experimental variations, and strict tracking of positive, negative, and vehicle controls to minimize systemic error. Phase 3: Interim Quality Control Checkpoint - Mid-project Faculty Review. Diagnostic inspection of raw datasets and recording real-time modifications to active methods. Phase 4: Statistical Modelling & Data Visualization - Setting up specialized data software for parametric and non-parametric checks (ANOVA, t-tests, multi-variable regressions); calculation of statistical threshold deviations (p-values); and converting computational data arrays into publication-standard figures, scatter plots, and clustered data tables.

Phase 5: Dissertation Synthesis & Academic Writing

- Compiling the objective results narrative, writing descriptive figure legends, and drafting the comparative discussion section by synthesizing primary findings with current literature and evaluating methodology boundaries.

Phase 6: Dissemination & Viva-Voce Defence

- Abstract editing, referencing validation, layout design for the public A0-format scientific poster exhibition, and a 12-minute formal slide presentation followed by an unscripted cross-examination defense before the faculty and students.

1. Factual information

Module title	Chemistry 117 – General Chemistry for the Biological Sciences		
Module tutor	Dr. Maria Kalamaki	Level	4
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

This course is required for all Biology majors and introduces the fundamental principles of chemistry. It is designed to equip students with the essential concepts of atomic structure, chemical bonding, thermodynamics, kinetics, equilibrium, and solution chemistry that underpin advanced study in disciplines such as Biology, Biochemistry, Molecular Biology, Biotechnology, Environmental Health, and Toxicology. The course establishes the quantitative and conceptual framework necessary for understanding chemical processes in biological systems and prepares students for further coursework in Organic Chemistry and related scientific fields.

3. Aims of the module

This course aims to develop students' understanding of atomic structure and its relationship to the chemical reactivity of elements. Emphasis is placed on periodic trends and their influence on bonding patterns and reactivity across the periodic table. Students will examine solubility and physical properties through the framework of intermolecular forces and molecular interactions. The course also explores the principles of thermodynamics, enabling students to predict the spontaneity and energy changes of chemical processes. Reaction kinetics is introduced through experimental approaches used to measure reaction rates and analyse factors that influence them. Students will further investigate chemical equilibrium and acid–base behaviour in aqueous systems. Throughout the course, chemical principles are contextualized within biological systems to highlight their relevance to the life sciences.

4. Pre-requisite modules or specified entry requirements

N/A

5. Indicative content

- Atoms, Ions and Molecules; Atomic spectra and atomic structure
- Atomic orbitals & electron configurations; Periodic trends; Chemical bonds; Lewis structures; Properties of covalent bonds
- Molecular shape & polarity; Valence bond theory & hybridized orbitals; molecular recognition
- Types of intermolecular interactions; Trends in solubility; properties of water
- Chemical reactions & stoichiometric calculations
- Aqueous solutions, electrolytes, & acid/base reactions; Precipitation & redox reactions; titrations
- Heat, work, & the 1st Law; enthalpy; Heat transfer; reaction calorimetry; lattice enthalpies; Spontaneity & entropy; The 2nd Law & free energy.
- Rates of reaction & rate laws; Reaction energetics & mechanisms
- Reversible reactions & equilibrium constants; Equilibrium calculations; LeChâtelier's Principle

- Acid/base equilibria; Acid/base calculations
- pH buffers and indicators, acid/base titrations

Indicative LAB experiments

- Laboratory safety, Accuracy and precision, density, mole, mass and volume
- Flame tests
- VSEPR theory and the shapes of molecules
- Chromatography, Limiting reactant and percent yield
- Solubility rules
- Thermochemistry
- Chemical kinetics – iodine clock reaction
- Equilibrium Constant - Le Chatelier's Principle
- Volumetric analysis: acid base titrations

1. Factual information

Module title	Chemistry 215 – Organic Chemistry I		
Module tutor	Dr. Georgios Leonidis	Level	4
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

This is a required module for all Biology majors. It is designed to introduce biology students to the basic concepts in organic chemistry in order to better comprehend related subjects such as Biochemistry, Biotechnology and Environmental Health and Toxicology.

3. Aims of the module

Describe organic compounds and write molecular formulae from given names. Draw diagrams of molecules indicating the hybridization of individual atoms. Elucidate reaction mechanisms using curved arrows for selected organic reactions. Assign the stereochemistry of simple organic compounds. Explain the mechanisms of substitution and elimination reactions. Describe and explain the reactivity of alkenes and alkynes toward a selection of reagents. Discuss the periodic trends of elements in relation to chemical bonding and reactivity. Explain solubility, and physical properties in terms of intermolecular forces. Understand the role of thermodynamics and predict spontaneity of reactions. Emphasize on applications of chemical principles in biological systems. Discuss the use Spectroscopy techniques in the elucidation of simple organic structures.

4. Pre-requisite modules or specified entry requirements

Chemistry 117

5. Indicative content

Acids and Bases, Alkanes, Stereoisomerism, Chemical Reactivity and Mechanisms, Alkyl Halides: Nucleophilic Substitution and Elimination Reactions, Addition Reactions of Alkenes, Alkynes, Synthesis and Reactions, Radical Reactions, Alcohols and Ethers, Introduction to Spectroscopy.

Indicative LAB experiments

Crystallization, melting points, miscibility-solubility
Distillation, boiling points
Separation of an Analgesic Tablet
TLC & Column Chromatography
Nucleophilic Substitution
Dehydration of an Alcohol

1. Factual information			
Module title	Chemistry 216 – Organic Chemistry II		
Module tutor	Dr. Georgios Leonidis	Level	5
Module type	Taught: Lecture/guided discussion/lab	Credit value	15
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	150 notional hours: 30 hrs lecture/tutorials, 18 hrs supervised lab work and reporting, 102 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

This elective module provides an advanced exploration of organic chemistry, specifically designed for students interested in drug design and the pharmaceutical industry. Building upon the foundational principles of Organic Chemistry 1, this module shifts toward the mastery of complex molecular architecture and reactivity.

3. Aims of the module

Elucidate reaction mechanisms using curved arrows for reactions of ethers, conjugated systems, aromatic compounds. Assign the stereochemistry of more elaborate organic compounds. Explain the mechanisms of reactions of condensations and alpha substitutions of carbonyl compounds. Describe and explain the reactivity of amines and carboxylic acid derivatives toward a selection of reagents. Discuss the use of NMR, IR and MS in the elucidation of organic structure. Emphasize on applications of chemical principles in biological systems.

4. Pre-requisite modules or specified entry requirements

Chemistry 117, Chemistry 215

5. Indicative content

Infrared spectroscopy and mass spectroscopy, Nuclear magnetic resonance spectroscopy, conjugated systems and UV spectroscopy, Aromatic compounds, Reactions of aromatic compounds, Ketones and Aldehydes, Amines, Carboxylic acids, Carboxylic acid derivatives, Other Carbonyl compound reactions.

Indicative LAB experiments

Esterification Reaction
Friedel-Crafts Alkylation
Aldol Condensation
Diels-Alder Cyclization
Grignard Alcohol Synthesis

1. Factual information			
Module title	Anatomy 115 – Integrated Human Anatomy & Physiology I		
Module tutor	Dr. Andreas Anestis	Level	4
Module type	Taught: Lecture/guided discussion/lab	Credit value	20
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	200 notional hours: 49.5 hrs lecture/tutorials, 32 hrs supervised lab work and reporting, 118.5 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements
This is a required module for all Biological Sciences majors. This module is designed to provide an understanding of the anatomical structures, function, and regulation of integumentary, muscular, skeletal, nervous and endocrine systems. The fundamental concept of homeostasis described elsewhere at the cellular level is here approached as the outcome of the interaction of organs at the systemic level.

3. Aims of the module
This is a combined lecture and lab module that explores the relationship between structure, function, and homeostasis in the human body. It aims to provide students with knowledge of normal function of the organ systems and thereby provide the information base for interpreting data relating to health and disease. This module covers the skeletal, muscular, integumentary, and nervous systems, as well as cytology and histology. For those in health fields, this information will serve as the foundation for most of their modules.

4. Pre-requisite modules or specified entry requirements
N/A

5. Indicative content
Weeks 1-2 • Organization of the human body. Anatomical terminology. Homeostasis • Chemical basis of life. Basic biochemistry. Weeks 3-4 • Cells. Movements through cell membranes. • Tissues Weeks 4-5 • Bone Tissue and Structure. Microscopic bone structure for compact and spongy bone. Bone development and growth. • The skeletal system. Joints of the skeletal system. Classification of joints. Types of joint movements. Weeks 6-7 • Muscle tissue. Gross and microscopic anatomy of a skeletal muscle. The neuromuscular junction. Skeletal muscle contraction physiology. Smooth and cardiac muscle. Major skeletal muscles of the body. Weeks 8-10 • Nervous system. Generation of action potential. Synapse. Action potential propagation. Neurotransmitter and neuromodulator. Central Nervous System. Spinal Cord. Brain. Cranial nerves. Autonomic nervous system. Parasympathetic Nervous system. Sympathetic nervous system. • The Special senses. Week 11 • The endocrine system. <u>Lab components:</u> • Microscopic examination of cells and tissues • Membrane transportation mechanisms • Dissection labs: brain, eye, muscle • Bone identification lab • Muscular energy metabolism • Recordings of muscular and brain functions

- Laboratory visits to relevant research or teaching laboratories

1. Factual information

Module title	Statistics 211– Biostatistics with R		
Module tutor	TBD	Level	5
Module type	Taught: Lecture/guided discussion	Credit value	15
Mode of delivery	Required. Face to face Lecture/guided discussion/ supervised lab work		
Notional learning hours	150 notional hours: 44 hrs lecture/tutorials; 11 hrs tutorials/office hours, 95 hrs guided independent study.		

2. Rationale of the module within the degree scheme/Prerequisites/other entry requirements

An application-oriented introduction to modern biostatistical analysis using R software that includes: experimental and biological study design; exploratory data analysis of biological datasets; random variables; probability models in genetics and ecology; sampling distributions; point and interval estimates; hypothesis tests and linear regression. A wide variety of biological and biomedical applications are used. This module is required for all Biology majors.

3. Aims of the module

This module introduces descriptive and inferential biostatistical methods relevant to the biological sciences. Students will develop problem-solving and data analysis skills using both foundational statistical approaches and R statistical software. The module also introduces the formulation of biological research questions, principles of experimental and observational study design, biological data collection and analysis, and interpretation and communication of statistical findings within a scientific context.

The module aims to:

- develop analytical and quantitative skills relevant to scientific research and evidence-based decision-making;
- provide foundational statistical knowledge required for advanced study in the life sciences, bioinformatics, and computational biology;
- develop competence in the analysis and visualisation of biological data using R software;
- support effective scientific communication of statistical findings in both oral and written formats, including laboratory reports and journal-style summaries.

4. Pre-requisite modules or specified entry requirements

Math 120

5. Indicative content

- Data and statistics: Types of variables (nominal, ordinal, discrete, continuous); the role of statistics in the life sciences.
- Descriptive Statistics: Visualizing Biodiversity: Graphical representation of biological data using R (histograms, boxplots, and scatter plots).
- Descriptive Statistics: Numerical Measures: Measures of central tendency and dispersion in biological populations (mean, median, variance, standard deviation, and coefficient of variation).
- Probability in Nature: Basic probability concepts applied to genetic inheritance and clinical risk
- Discrete Probability Distributions: Modelling biological events using Binomial (e.g., genetic crosses) and Poisson (e.g., distribution of organisms) distributions.
- Continuous Probability Distributions: The Normal distribution in biological traits; computing Z-scores for physiological measurements.
- Sampling Distributions: The Central Limit Theorem applied to biological sampling and the properties of the sampling distribution of the mean.
- Interval Estimation in Research: Constructing and interpreting confidence intervals for population parameters in biological studies.
- Hypothesis Testing in the Lab: Null and alternative hypotheses; Type I and Type II errors; p-values; and t-tests in the context of experimental biology.
- Linear Regression and Correlation: Modelling relationships between biological variables (e.g., metabolic rate vs. body

mass) and assessing goodness-of-fit.

1. Factual information

Module title	PRACTICUM 300 Practicum			
Module tutor	Staff	Level	6	
Module type	Student placement and lectures/guided workshops	Credit value	15	
Mode of delivery	100% face-to-face			
Notional learning hours	Learning and teaching			
	Type of learning activity	Comprises	Hours	Weeks
	Timetabled in class contact:	Face to face delivery to include lectures, guest speakers and tutorials.	10	12
	Supported open learning:	Completion of networking activities throughout the module.	20	12
	Independent study/Placement hours:	Placement/Site experience, network activities, external visits. Online resources will be available to support independent learning.	120	12
	Total:		150	12

2. Rationale for the module and its links with other modules

This is a level 6 major elective module which enables students to immerse themselves in real-life contexts, collaborate with community partners and mentors, and better understand the requirements of the community engagement and professional work, where relevant. There is a focus on reflexivity, problem-solving, communication skills development, critical thinking and writing.

3. Aims of the module

The module aims to offer students experiential and service-learning experiences which bring together knowledge acquired in various modules in their field of academic studies and its applications in diverse research and practice-based environments, such as the professional setting, education, not-for-profit, and the arts sector. As such, this placement module prepares students for further independent work and gives them hands-on experience of various professional fields, better equipping them for the job market.

4. Pre-requisite modules or specified entry requirements

N/A

5. Indicative content

The module is a combination of classroom sessions and fieldwork / site placement. Students' projects depend on the nature of their placements. To start with, they fill in a skills and interests questionnaire, which helps to identify placements of relevance and interest out of the options available. This will be followed by interviews / informal discussions with organization staff where required.

During the first couple of weeks students will be acquainted with their placement sites and participate in a series of workshops and lectures delivered by the tutor and/or guest speakers on a variety of issues related to the practice of their subject area: from skills development (e.g. time management skills, team building, professional communication, adaptability and readiness at the workplace) to ethical issues in work, research and principles in community participation.

5. Indicative content

In the remainder of the term students will work on their placement projects. Location and schedules will be agreed jointly with their allocated mentors. The key principle underlying students' activities is the co-construction of knowledge through student-mentor-tutor collaboration. Such a participatory approach enables a shared, co-experienced understanding of the issues explored. Whilst the allocated mentors will support and guide students throughout, the latter are expected to demonstrate independent thinking, use of own initiative and responsiveness to the needs of the community / organization, so that they produce a piece of work that benefits them and falls within the aims and learning outcomes of their programme.

Further information about the placements, including ethical and academic considerations, is available on moodle / ACTivity and the module handbook.

ACADEMIC ADVISING AND MENTORING

During the first 2 weeks of classes, students will be assigned the faculty member who will be their Academic Advisor for their first year at AAU and, in most cases, until graduation. The Academic Advisor helps students to plan their overall program of studies, as well as to select modules each semester. Advisors also provide information about AAU academic and support services, assist students in addressing problems in particular modules within a given semester, and offer ongoing advice concerning the students' long-term academic and career goals.

THE LEARNING HUB

The Learning Hub strives to help students to become strong, independent learners through a variety of services. AAU's Learning Hub is located on the upper floor of the Library. Students are invited to meet with the tutors and receive assistance with writing projects and science needs. Consultation is offered on one to one basis on prearranged meetings, or drop in sessions, as well as via e-mail.

9. OPPORTUNITIES FOR PERSONAL DEVELOPMENT PLANNING

CAREER SERVICES AND GUIDANCE

The Career Office equips students with the tools and know-how to successfully kickstart their careers. Specifically, it provides hands-on training on interviewing, resume & cover letter writing. The above are subsidized by guest lectures, which help students get an insight in their field of interest, and company visits, which give students the opportunity to meet company representatives and conduct informational interviews. The office also provides individual consultations in any career related issue, including job search tactics, career planning, resume preparation and mock interviews. Apart from this preparation stage, the career office offers internship and job opportunities, both in Greece and abroad, accessible to all students via the Career Office's job board.

In addition, the Career Office also organizes the annual Career Week, a week-long event with lectures, company presentations, on-campus recruiting, networking opportunities and hands-on workshops.

The Office also serves as Liaison with the Business Community, and works actively with Industry and Academia to identify placement opportunities and keep students informed of local and regional trends. Leading representatives from the private and public sectors visit AAU regularly as guest speakers in classes and events, reinforcing AAU's strong ties with companies, institutions and organizations throughout the local, national and international business environment.

INTERNSHIPS

The Career Office gives special emphasis to students' internships, both with local and international organizations. Every semester there is a visiting program with local organizations with internship opportunities, all relevant to the academic programmes and focusing on enhancing in-class learning. Apart from the on-campus recruiting, we coordinate a series of internship opportunities with organizations located in other cities or even abroad, either with on-site placement or remote work. The school's Job Board and

Facebook Career Group help disseminate the internship opportunities, while the Career Workshops (resume writing, cover letter preparation, mock interviews) prepare students for claiming those opportunities.

10. FACILITIES AND SERVICES

BISSELL LIBRARY - GENERAL INFORMATION

The Bissell Library offers a vast collection of books in print, electronic books, videos, and DVDs. Already one of the largest English language libraries in Greece, its collection is rapidly growing into a space designed to accommodate the institution's needs for years to come. The collection includes subscriptions to periodicals in hard copy as well as access to numerous full-text scholarly journals, magazines, and newspapers.

The Bissell Library offers, to currently enrolled students, on site and remote access to research databases to support inquiry and research. Business databases include Ebsco's Business Source Elite, Regional Business News, Hoover's, and ProQuest ABI Inform Global. Databases for research include: Academic Search Premier, E-books collection, Encyclopaedia Britannica, ERIC, GreenFILE, Columbia International Affairs Online (CIAO), JSTOR, Oxford English Dictionary and Oxford Music Online. We also subscribe to the Ebsco A-Z service, providing listing of all the electronic resources accessible from the library. The EBSCO Discovery Service TM brings together the most comprehensive content providing to users an easy, yet powerful means of accessing all of the library's information resources through a single search. Access to all collections is available through the web-based library catalog. Library users can search the catalog, databases or the Internet through public access terminals available on both floors of the library. Network ports are available for laptops and the entire building is Wi-Fi enabled.

COMPUTING SERVICES & NETWORKING FACILITIES

AAU has state of the art computer infrastructure and facilities. All computer facilities are connected to a high-speed campus network, which is based on fiber optic cables connecting all buildings. In addition, a large high speed wireless network access (WI-FI) covers large areas of the campus giving students the ability to use the school's resources or access the internet on their laptop.

Many high-speed servers are present in the network infrastructure, along with Intel® Core™ latest technology workstations, connected to the Internet, available to students in multiple laboratories.

The laboratories are used both as general access and instructional computer labs. They are equipped with data projectors and black and white or color laser printers. All stations are networked with full Internet Access and run the latest software such as MS office, Oracle, Power-builder, Visible Analyst, Java, Visual Basic, 3-D Max, Adobe Photoshop, Adobe CS Production Studio Premium, Macromedia Studio, Macromedia Authorware, PanaView Image Assembler, Mathematica Player, Minitab, MathCad, Daedalus, etc.

SCIENCE LABORATORIES

The majority of the biological sciences modules are accompanied by laboratory work. The purpose of the laboratories offered is to expose students to hands-on experience regarding concepts and principles learned in classroom. The University's Science Facilities are located in the ground floor of Constantinidis Hall. The facilities include four laboratories (Biology/Ecology, Physics, Chemistry, Organic Chemistry).

MINIMUM REQUIREMENTS FOR PASS

To obtain an Open University award students are required to complete all parts of the programme's approved assessment and comply with all regulations relating to their programme of study. The minimum aggregate pass marks for The Open University validated awards are 40% for undergraduate programmes. These minima apply to assessments, modules, stages and qualifications.

DETERMINING MODULE OUTCOMES

The overall module mark or grade shall be determined as set out in the assessment strategy detailed in the module specification and published in the Programme Handbook. A student who passes a module shall be awarded the credit for that module. The amount of credit for each module shall be set out in the programme specification and published in the Programme Handbook. In order to pass a module a student must achieve the requirement of the module as set out in the module specification and published in the Programme Handbook. Where a student is registered only for a module (rather than a qualification) the resit will apply.

BACHELOR HONOURS DEGREE CLASSIFICATION

Classification of bachelor degrees will be based on the average mark across all modules within Stage 3 (usually Credit Level 6) and Stage 2 (usually Credit Level 5) at a ratio of 2:1 respectively unless the requirements of a Professional, Statutory and Regulatory Body (PSRB) state otherwise.

Honours degrees are classified as:

- First class Aggregate mark of 70% or above
- Upper Second class Aggregate mark between 60% and 69%
- Lower Second class Aggregate mark between 50% and 59%
- Third class Aggregate mark between 40% and 49%

Where students have directly entered a Qualification Level 6 top-up award (e.g. having previously undertaken a Higher National Diploma (HND) or Foundation Degree (FD) award) the calculation for the honours classification will be based solely on all credits at Credit Level 6.

Performance in work for which an award of credit for prior learning has been made is not taken into account in the calculation of the final award.

Where the final result of the classification calculation creates a mark of 0.5% or greater this will be rounded up to the next full percentage point (e.g. 69.5% is rounded to 70%; 59.5% to 60%; and so on). Where the calculation creates a mark below 0.5% this will be rounded down to the next full percentage point (e.g. 69.4% is rounded to 69%; 59.4% to 59%; and so on). For the purposes of rounding up or down, only the first decimal place is used.

SUBMISSION OF ASSESSED WORK

Work submitted for a summative assessment component cannot be amended after submission, or re submitted.

Student requests for extensions to assessment deadlines will not be approved unless made in accordance with published partner institution guidelines as approved by The Open University.

Where coursework is submitted late and there are no accepted extenuating circumstances it will be penalized in line with the following tariff:

Submission within 6 working days: a 10% reduction for each working day late down to the 40% pass mark and no further.

Submission that is late by 7 or more working days: submission refused, mark of 0. A working day is defined by the partner and submission after the deadline will be assumed to be the next working day. Academic staff must submit their marks and feedback within 3 working days from the day the assessment was submitted.

ASSESSMENT SCORES

All undergraduate assessment will be marked on a percentage scale of 0-100.

% Scale Score	Performance Standard
70+	Excellent pass
60-69	Very Good pass
50-59	Good Pass
40-49	Pass
0-39	Fail

The final grade for an individual assessment component will be determined after completion of a quality assurance process (e.g. moderation, remarking) as detailed in the partner institution's OU approved policy for moderation.

Where the result of the assessment calculation creates a mark of 0.5% or greater this will be rounded up to the next full percentage point (e.g. 69.5% is rounded to 70; 59.5% to 60%; and so on). Where the calculation creates a mark below 0.5% this will be rounded down to the next full percentage point (e.g. 69.4% is rounded to 69%; 59.4% to 59%; and so on). For the purposes of rounding up or down, only the first decimal place is used.

DETERMINING PROGRESSION AND QUALIFICATION OUTCOMES

The paths through which students are required to progress through the programme, and the elements identified as compulsory or optional, are set out in the programme specification and approved in the validation process.

Pathways through any programmes offered by partner institutions may require students to complete prerequisite or co-requisite modules.

STAGE REQUIREMENTS

Each of the stages of an undergraduate programme is expected to consist of a total of 120 credits. In cases where Programmes are not divided into stages (for example, most postgraduate programmes and undergraduate programmes of 120 credits or less) the provisions below apply to the whole programme. The credit value of each module contributing to a stage determines its weighting in the aggregation of credit for a stage.

Where a student fails a module, the following may apply in the first instance:

- Resit, a second attempt at an assessment component following a failure at first attempt.

RESIT PROVISION

Resit provision is subject to all the following conditions:

- The maximum number of retakes allowed in a programme leading to an Open University award is 10.
- A student who does not complete the resit by the date specified shall not progress on the programme, except in cases where the process for allowing extenuating circumstances has been followed.
- Resits can only take place after the meeting of the Board of Examiners or following agreement by the Chair and the External Examiner of the Board.
- A student who successfully completes any required resits within a module shall be awarded the credit for the module and the result capped at the minimum pass mark for the module.

12. DISSERTATIONS AND PROJECTS

HOW THE BISSELL LIBRARY SUPPORTS STUDENTS WITH THEIR THESES

The Bissell library in its effort to compliment and facilitate the educational process and the curriculum, always strives to provide the best services possible safeguarding that all students across all Schools receive the same learning experience and support, as well as fair access to all available resources and services. More specifically when it comes to the writing up stage of their theses, the Bissell Library provides the following Resources and Support Services.

Resources :

- A collection of thesis writing books, academic writing and general study skills. This collection is housed in the Learning Hub
- Subject guides corresponding to the Schools also provide a thematic information gateway of trustworthy information resources (e-journals, databases, etc.) to assist students in their quest for information gathering for their theses.
- The website of the Library, attempts to familiarize and provide introductory guidance on how to use various online tools such as Zotero, EasyBib and Diigo, which can become indispensable tools when it comes managing information and bookmarks, and citing resources.
- Guides have been composed to assist students with the OU Harvard referencing style (available on the library website)
- The Library in conjunction with all Schools has streamlined the procedure of gathering all theses so as to develop in the near future an Institutional Repository. In the meantime students can drop in any time and can have access to study good examples of theses on site.
- Last but not list a plethora of printed material in a variety of subjects is also available to students.

- The students are able to ask for Interlibrary loans of journal articles we do not have online access to. The service is provided by the British Library. They are also able to suggest books relevant to their research to the library to buy.

Support Services:

- The allocation of two Academic Liaison Librarians as well as School Academic staff reps allow for better communication among students, academic staff and the Library. This helps students and academic staff to convey in a more efficient manner their needs to the Library.
- Information Literacy lessons conducted by the Academic Liaison Librarians offer students a reminder of research, evaluation and referencing skills to support them in their project. This come as a continuation of previous Information literacy teaching offered in the previous years of study, more specifically in English 101 which includes 6-Information literacy sessions. These sessions include: techniques on how to locate formal and informal information sources on subjects, evaluation of resources, plagiarism and paraphrasing, and referencing.
- Finally, the Academic Liaison Librarians provide one to one support on how to search, evaluate and locate materials and referencing, either in drop-in sessions or after appointments.

13. OTHER INSTITUTIONAL POLICIES AND REGULATIONS

ACADEMIC MISCONDUCT

An academic offence (or breach of academic integrity) includes any action or behavior likely to confer an unfair advantage, whether by advantaging the alleged offender or by disadvantaging another or others. Examples of such misconduct are plagiarism, collusion, cheating, impersonation, use of inadmissible material and disruptive behavior.

Responsibilities

- Students: Students are responsible for upholding academic integrity and reporting any instances of academic misconduct. They must familiarize themselves with the institution's Academic Misconduct Policy and adhere to it.
- Faculty and Staff: Faculty and staff are responsible for preventing, detecting, and addressing academic misconduct. They are expected to educate students on academic integrity, report any suspected cases, and follow the procedures outlined in this policy.
- Procedures Reporting Suspected Misconduct: Charges against a student for violating academic integrity may originate from any source: a faculty member, an administrator, a staff member, a fellow student, or from the community at large. Anyone who suspects academic misconduct must report it to the appropriate academic authority (Department Chair, Associate Deans) and provide evidence. In case of plagiarism, it should also be reported to the student electronically through the AAU's ERP system. In this way, students are immediately notified. Students may also report academic misconduct by another student to the faculty or staff member responsible for the module.
- Investigation: Upon receiving a report of academic misconduct, the academic authority shall forward the case to the Academic Standards and Performance Committee (ASPC). If a member of the Committee originates the charge, then that member will be excluded from the decision-making process, and any other process related to the case.

The ASPC will either itself investigate the charge or establish from its own membership a panel to conduct the investigation. In establishing whether a breach of academic integrity has occurred, the Committee should consider oral and/or written evidence supplied by the individual(s) making the charge and the alleged offender. The alleged offender shall have the right to appear before the Committee.

Determination and Consequences

After the investigation, the ASPC shall determine whether academic misconduct occurred. If academic misconduct is confirmed, sanctions will be imposed based on the severity and frequency of the offense.

The following list of sanctions is indicative and can be imposed by majority vote of the Committee:

- Admonishment Letter (or Letter of Warning): The student is advised in writing that their behavior violates rules of academic and/or personal integrity and that a recurrence will lead to more serious sanctions. The Committee will deliberate on whether the letter should or should not appear in the student's file permanently or for a lesser period of time.
- First Offense File: The student's name and a description of the offense is filed in a shared electronic folder, accessible by the Provost, the Deans, the department chairs and the area coordinators. Second offenses automatically result in a hearing.
- Disciplinary Probation: The student is advised in writing that their behavior violates rules on academic and/or personal integrity and is given a probationary period (to be decided upon by the Committee) to show by good behavior that a more stringent penalty should not be imposed. During the period of the probation, the student is required to terminate association with all extra-curricular activities and resign from any student office.
- Suspension: The student's relationship with the ULE will be discontinued until the end of the semester or term. The student will forfeit any fees involved with the ULE.
- Dismissal: The student's relationship with the ULE will be terminated

EXTENUATING CIRCUMSTANCES

The Open University recognizes that students may suffer from a sudden illness, or other serious and unforeseen event or set of circumstances, which adversely affects their ability to complete an assessment, or the results they obtain for an assessment. In such cases the partner institution's extenuating circumstances procedures will be applied, as approved in institutional review.

A student who is prevented from attending or completing a formal assessment component or who feels that their performance would be (or has been) seriously impaired by extenuating circumstances, may submit a deferral request to the AS&PC.

MITIGATING CIRCUMSTANCES

The following regulations distinguish between factors or circumstances which were known to the student in advance of taking an assessment and which affect his or her ability to attend an examination or submit work by the published deadline, and those which have not impaired the student's ability to attend for examination or meet a deadline for the submission of work but which may have affected his or her performance. In all cases, it is the responsibility of the student to ensure the timely disclosure of any factors or circumstances

which may affect the assessment of his or her learning and responsibility for the consideration of these factors and circumstances will lie with the AS&PC.

Students whose circumstances may affect (or may have affected) their ability to meet a program's assessment requirements must submit a completed Mitigating Circumstances Extension Form together with verifiable documentation to the Registrar's Office. This form can be completed electronically or in person and may, if necessary, be signed retrospectively.

In the case of factors or circumstances which were known to the student in advance of taking an assessment and which affect his or her ability to attend an examination or submit work by the published deadline:

- the AS&PC will consider the evidence submitted by the student;
- if the mitigating circumstances are accepted by the Committee it will determine the extension to be granted to the student or, in the case of examinations, the date on which the student shall be assessed; in such cases the grades will not be capped at 40%.
- the Chair of the Board of Examiners, the Registrar and the appropriate department head/area coordinator will be informed of the Committee's decision.
- The student will have the right to apply for a further extension, or for a rescheduling of an examination, if the mitigating circumstances persist.

In the case of factors or circumstances having prevented a student from attending for examination or meeting a deadline for the submission of work but which may have affected his or her performance:

- the AS&PC will review the evidence submitted by the student and make a recommendation for consideration by the appropriate Board of Examiners;
- the Board of Examiners is responsible for considering that action that it should take in the light of the recommendations of the AS&PC;
- the actions available to the Board of Examiners include: the deferral of an assessment to a later date; compensation for the failure in a module; agreement that the student should either retake the module or be reassessed with the grade achieved being recorded in the student's transcript and therefore contributing to the classification of the award; and, exceptionally a decision that the student be assigned a higher grade for the module or modules on which his or her performance has been affected.

Students are responsible for ensuring that the partner institution is notified of any extenuating circumstances at the time they occur and for supplying supporting documentation by the published deadline. If a student is unable to attend an examination or other assessment event because of extenuating circumstances, they must inform the Partner institution as soon as possible and provide supporting evidence before published deadlines or within 7 calendar days, whichever is sooner. If a student cannot submit evidence by published deadlines, they must submit details of the extenuating circumstances with an indication that evidence will be submitted within 7 calendar days.

Medical evidence submitted in support of a claim for extenuating circumstances should be provided by a qualified medical practitioner.

Upon receipt of recommendations from the panel or body responsible for investigating extenuating circumstances, the Board of Examiners, or its subsidiary board, will decide whether to:

- provide a student with the opportunity to take the affected assessment(s) as if for the first time i.e. a 'sit' or 'submit', allowing them to be given the full marks achieved for the examination or assessment, rather than imposing a cap;
- waive late submission penalties;

- determine that there is sufficient evidence of the achievement of the intended learning outcomes from other pieces of assessment in the module(s) for an overall mark to be derived;
- note the accepted extenuation for the module(s) and recommend that it is taken into account at the point of award and classification.

The Board of Examiners, depending on the circumstances, may exercise discretion in deciding on the particular form any reassessment should take. Options are a viva voce examination, additional assessment tasks designed to show whether the student has satisfied the programme learning outcomes, review of previous work, or normal assessment at the next available opportunity. The student will not be put in a position of unfair advantage or disadvantage: the aim will be to enable the student to be assessed on equal terms with their cohort.

The module marks released following the meeting of the Board of Examiners should clearly identify results where extenuation has been considered and applied.

If a student fails, without good cause, to provide the responsible body with information about extenuating circumstances within the timescales specified in the partner institution policy, the responsible body has authority to reject the request on those grounds.

14. STUDENT PARTICIPATION AND EVALUATION

STUDENT PARTICIPATION

A member of the Student Government Association (SGA) must be present at all meetings of the Academic Standards and Performance Committee (ASPC) of the university, and participate in the discussions and voting for all cases examined. Furthermore, there are scheduled weekly meetings between the Associate Dean of Administration & Student Affairs and the SGA, where students present their views on the operation and development of the University. In addition, AAU may invite students to Academic Council meetings, where they can express their views and opinions to the top-level administration. The SGA is also involved in co-organizing major on-campus events.

MODULE EVALUATION

Module evaluation is conducted through the student evaluation forms. These forms measure the teaching quality and assessment methods, learning materials, delivery methods, module objectives, thought-provoking activities, comprehension of the subject matter, grading, degree of intellectual challenge and stimulation and draw comparisons with other modules.

The collection of student feedback is made at the office of the Associate Dean of Students, who has the general overview of the procedure. Then, modules are classified according to the programme they belong, and the feedback is sent to the corresponding department head. The results are also forwarded to the individual instructors. The outcomes of module evaluations and measures that need to be taken to improve student experience in future offerings of the modules are discussed with the academic teams.