INTERNATIONAL FOUNDATION GROUP

Students' Handbook - Medical Foundation Programme

2025/26

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Course Outline

Module	Credits
Term One	
Chemistry 1. Atoms, Molecules & Reactions	**20**
Biology 1. Genes, Cells & Development	**20**
Measurements in Life Sciences	**20**
Term Two	
Chemistry 2. Periodic & Organic Chemistry	**20**
Biology 2. Tissues, Systems & Regulation	**20**
Medicine, Disease & Society	**20**
Investigations in Biomedicine	**20**

Grading Guide

A 70 – 100%
B 60 – 69%
C 50 – 59%
Fail 0 – 49%

Course Modules

Chemistry 1. Atoms, Molecules and Reactions

Term One
20 credits

Introduction and Aims

The module of Atoms, Molecules and Reactions teaches the fundamentals of physical chemistry, so that students learn to account for and predict changes of chemical or biochemical state in terms of the constituents of matter and the energy changes they undergo. The module emphasises problem solving skills, and fundamental laws. Chemical principles will be illustrated with examples from life and health sciences, and students will be encouraged to find and discuss further applications.

Objectives

- Explain processes in physical chemistry in molecular/particulate terms.
- Predict the outcome of reactions and changes of state.
- Supply missing information from a reaction sequence.
- Solve quantitative problems in physical chemistry.
- Use analytical results to suggest suitable further experiments.

Recommended Reading

Author	Title	Publisher
Ryan L & Norris R. (2020)	*Cambridge International AS and A Level Chemistry Coursebook* (Cambridge International Examinations)	Cambridge University Press
IFG Pharos - Presentations, Worksheets, Video and Audio Materials, Sample Assessments		

Assessment

Assessment title	% of module grade
Coursework	30%
Examination	70%

Biology 1. Genes, Cells and Development

Term One
20 credits

Introduction and Aims

This module provides a solid foundation for the study of biomedical phenomena and the conditions for cellular life and health. Beginning with the constituents of living things, the module explores the way that molecules and energy interact to produce compartmentalised structures that regulate and reproduce themselves. A special topic on thalassemia will illustrate the way that sub-microscopic components of cells exert their effects across human societies.

Objectives

- Provide basic mechanistic explanations for various cellular processes.
- Supply missing information in written accounts and illustrations of cellular structures and phenomena.
- Provide clear legends for cellular diagrams and illustrations
- Retrieve and precise essential details from text and illustrations, showing grasp of cellular structure and function.
- Relate events at the cell surface to changes in gene action and cell function.

Recommended Reading

Author	Title	Publisher
Jones, M & Fosbery, R (2014)	Cambridge International AS and A Level Biology Coursebook with CD-ROM (Cambridge International Examinations)	Cambridge University Press
Lyons, I. (2011)	Biomedical Science	Wiley-Blackwell Perlego: https://ereader.perlego.com/1/book/1012310/0
IFG Pharos - Presentations, Worksheets, Video and Audio Materials, Sample Assessments		

Assessment

Assessment title	% of module grade
Coursework	30%
Examination	70%

Measurements in Life Sciences

Term One
20 credits

Introduction and Aims

In this module students will learn how biology and health are described and investigated by physical approaches, since living systems have no special laws of their own. They will approach physical concepts through examples drawn from biological scenarios. These studies in physics will be underpinned by workshops where students will become proficient in mathematical operations and thinking that will be required throughout their academic and professional lives. Finally, students will learn the basics of computing, and apply them to a simple biological problem or scenario.

Objectives

- Identify and explain simple physical principles underlying biological phenomena.
- Solve straightforward problems in mathematical biology using functions, calculus and probability.
- Write simple pseudocode to describe a biological process.
- Make order-of-magnitude estimates.

Recommended Reading

Author	Title	Publisher
Sang, David. (2014)	*Cambridge IGCSE Physics Coursebook* with CD-ROM (Cambridge International IGCSE)	Cambridge University Press
Morrison, K and Hamshaw, N (2015)	*Cambridge IGCSE Mathematics Core and Extended Coursebook* with CD-ROM (Cambridge International IGCSE)	Cambridge University Press
B.H.Brown et al (2017)	Medical Physics and Biomedical Engineering	CRC Press Perlego: https://ereader.perlego.com/1/book/1574074/0
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Assessment

Assessment title	% of module grade
Coursework 1	15%
Coursework 2	25%
Examination	60%

Chemistry 2. Periodic and Organic Chemistry

Term Two
20 credits

Introduction and Aims

This module surveys the periodic table and organic chemistry, with an emphasis on principles (of atomic structure, of electron movements) that develop students' skills in chemical problem solving. Functional groups will be studied in the context of reaction mechanisms (free radicals, eliminations, additions, substitutions) and function. Students are encouraged to explore biomedical applications of group chemistry, organic structure and mechanism.

Objectives

- Explain trends in chemical properties in terms of atomic structure.
- Predict products of reaction given a reaction mechanism.
- Suggest reaction mechanism given products of reaction.
- Relate properties of biomaterials to their organic structure.

Recommended Reading

Author	Title	Publisher
Ryan L & Norris R. (2020)	*Cambridge International AS and A Level Chemistry Coursebook* (Cambridge International Examinations)	Cambridge University Press
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Assessment

Assessment title	% of module grade
Coursework	30%
Examination	70%

Biology 2. Tissues, Systems and Regulation

Term Two
20 credits

Introduction and Aims

This module builds on the work of Genes, Cells and Development to explain system-level phenomena in the life sciences. Students will study the principal physiological systems in mammals. Students are expected to apply physiological principles and mechanistic insights to explain the response of living systems to perturbations, including disease states.

Objectives

- Explain physiological responses to changes of state, including infection.
- Account for state changes in cellular and molecular terms.
- Give an account of the body's main life support systems, with examples of their interdependence.
- Suggest how state changes manifest themselves in patient symptoms (or vice-versa).

Recommended Reading

Author	Title	Publisher
Jones, M & Fosbery, R (2014)	*Cambridge International AS and A Level Biology Coursebook* with CD-ROM (Cambridge International Examinations)	Cambridge University Press
Lyons, I. (2011)	Biomedical Science	Wiley-Blackwell Perlego: https://ereader.perlego.com/1/book/1012310/0
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Assessment

Assessment title	% of module grade
Coursework	30%
Examination	70%

Medicine, Disease and Society

Term Two
20 credits

Introduction and Aims

Medicine, Disease and Society introduces students to the social and historical context of health and healthcare, including contemporary problems and dilemmas, and possible future developments. Students will consider their own reasons for aspiring to work in healthcare, and will acquire tools for discussing and evaluating claims about health, disease and treatment. In the course of this, they will develop their communicative competence and confidence, and become familiar with norms of academic work. In the course of activities and formal assessments, students will develop their own insights into learning style and revision, planning assignments, finding selecting and using sources, reading and note-taking strategies, class participation and teamwork, and most importantly, communicating and showing their learning.

Objectives

- Identify the changing priorities and practices of healthcare.
- Discuss the evidence base for claims about health and disease.
- Retrieve and evaluate data to support arguments.
- Explain the roles and responsibilities of patients and healthcare professionals.
- Reflect in a concrete way on motivations and challenges in pursuing a healthcare career.

Recommended Reading

Author	Title	Publisher
Nettleton, S.(2013)	The Sociology of Health and Illness	Polity Press Perlego version: https://ereader.perlego.com/1/book/2026834/0
Institute of Medicine	Adverse Effects of Vaccines: Evidence and Causality	The National Academies Press Perlego: https://ereader.perlego.com/1/book/530801/1
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Assessment

Assessment title	% of module grade
Coursework 1	60%
Coursework 2	40%

Investigations in Biomedicine

Term Two
20 credits

Introduction and Aims

This module prepares students to pursue and present their own work at a level appropriate to higher education. They will select a topic of interest, in negotiation with a supervisor, generate their own findings, and present the results in formats adapted to different audiences.

Objectives

- Produce a report in standard academic style.
- Design and defend a poster before an audience.
- Identify a topic of interest, and prepare a short proposal and a lay summary.
- Pursue independent inquiry, under supervision, meeting milestones along the way.

Recommended Reading

Author	Title	Publisher
Stuart Johnson & Jon Scott (2009)	*Study & Communication Skills for the Biosciences*	Oxford University Press
Allen, A. K. (2012)	Research Skills for Medical Students	Learning Matters Perlego: https://www.perlego.com/book/860445/research-skills-for-medical-students
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Assessment

Assessment title	% of module grade
Proposal	5%
Poster	20%
Dissertation	75%

Disclaimer

This handbook does not replace IFG's regulations. All students will be required, as a condition of enrolment, to abide by and submit to the procedures of IFG which are amended from time to time.

Every effort has been made to ensure the accuracy of the information contained within this handbook, but it is subject to alteration without notice. IFG will use all reasonable endeavours to deliver programmes in accordance with the descriptions set out in this handbook. However, IFG reserves the right to make variations to the contents or methods of delivery of programmes.