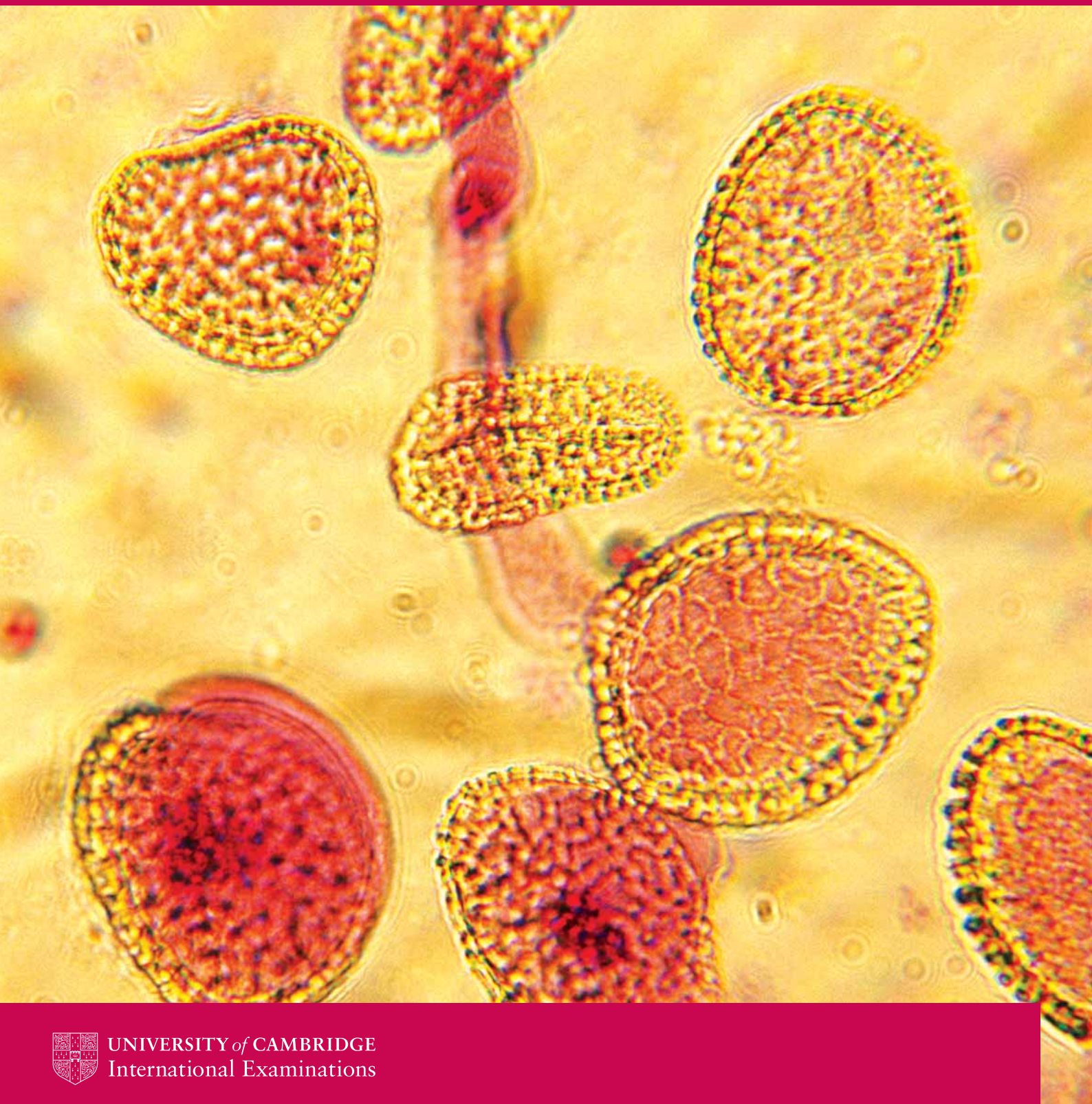


Syllabus Outline

Cambridge Pre-U  
**BIOLOGY**

Cambridge  
**Pre-U**

For examination in 2010



UNIVERSITY of CAMBRIDGE  
International Examinations

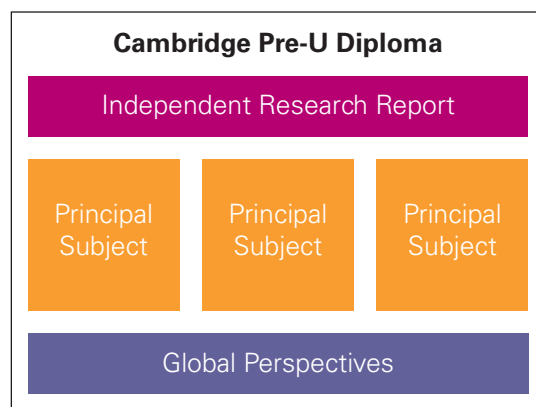
## Cambridge Pre-U Overview

Cambridge Pre-U equips students with the skills they need to make a success of their studies at university:

- a solid and coherent grounding in specialist subjects at an appropriate level;
- the ability to undertake independent and self-directed learning;
- the ability to think laterally, critically and creatively.

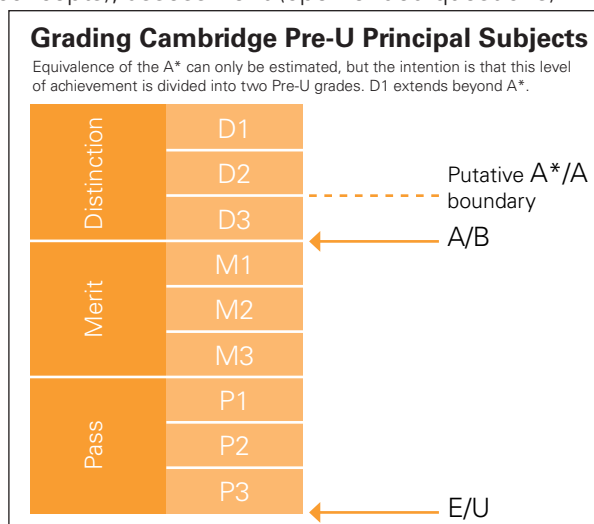
The Cambridge Pre-U Certificate in Biology is a stand-alone qualification, certificated separately.

Students can combine it with other individual Principal Subjects and core components (Global Perspectives, Independent Research Report) to gain the Cambridge Pre-U Diploma.



## Common characteristics of Cambridge Pre-U syllabuses

- **Stretch:** built into syllabus content (challenging concepts), assessment (open-ended questions) and grading outcomes (finer differentiation at the top end).
- **Innovation:** new approaches to subjects, new topics, new methods of delivery and new forms of assessment.
- **Progression in learning:** building on prior knowledge gained at 14-16, where appropriate.
- **Linearity:** assessment at the end of the course makes for greater coherence in teaching and learning, by freeing up time currently used in module examinations and retakes, and by giving teachers the freedom to structure their courses in the most appropriate way for their students.



Cambridge Pre-U offers a joined-up approach to assessment, making possible a coherent approach to teaching and learning.

## Reporting of Achievement

Achievement is reported on a scale of nine grades: D1 (Distinction 1), D2, D3, M1 (Merit 1), M2, M3, P1 (Pass 1), P2, P3. The grade D1 reports achievement above the new A\* grade. The intention is to differentiate more finely and extend reporting at the top end, while keeping the grading scale accessible to the full range of ability currently achieving passes at A Level.

# Cambridge Pre-U Biology

## Assessment Objectives

Candidates will be expected to:

<b>AO1</b>	demonstrate knowledge and understanding of the syllabus content
<b>AO2</b>	analyse, interpret and apply learned and new information in a variety of contexts
<b>AO3</b>	plan and perform practical investigations, analyse and evaluate results

Teachers should take note that there is a greater than 50% weighting for skills (including handling information, solving problems, practical, experimental and investigative skills) compared with less than 50% for knowledge and understanding. Teachers' schemes of work, and the sequence of learning activities, should reflect this balance, so that the aims of the syllabus may be met, and the candidates prepared for the assessment.

## Scheme of Assessment

For the Cambridge Pre-U qualification in Biology, candidates take four components in the same session and must also complete the matriculation can-do tasks.

Component	Component Title	Duration	Weighting(%)	Type of Assessment
<b>0</b>	Compulsory Matriculation	–	–	School-based 'can-do' tasks.
	Although there is no weighting associated with the compulsory matriculation can-do tasks, these must have been completed in order for CIE to be able to make the Cambridge Pre-U award.			
<b>1</b>	Multiple Choice	1h 15m	20	Written Paper, externally set and marked. All questions based on the entire syllabus.
	Section A: 25 direct choice questions. Section B: 15 questions with numbered statements where candidates choose one of four combinations which could be correct.			
<b>2</b>	Structured	1h 45m	30	Written Paper, externally set and marked. All questions based on the entire syllabus.
	Compulsory structured short-answer questions.			
<b>3</b>	Long-Answer	2h 30m	35	Written Paper, externally set and marked. Three sections.
	Section A: data analysis. Section B: comprehension. Section C: synoptic analysis and argumentation.			
<b>4</b>	Practical.	2h 30m	15	Practical Exam, externally set and marked. Two sections, equal time allocation. Section A requires a laboratory.
	Section A: tests skills in measurement, manipulation, observation and presentation of data and observations. Section B: assesses higher-order practical skills of planning, analysis, evaluation and drawing conclusions.			

## Curriculum content

The curriculum content is divided into six sections emphasising the evolutionary paradigm that underlies the design of the syllabus.

### Origin and fundamentals of life

The origin of life  
The chemicals of life  
The earliest cells and fundamental aspects of cell functioning

### Evolution of the eukaryotic cell

Cell structure and function  
Genes and protein synthesis  
Cell replication  
Evolution of multicellular organisms  
Transport systems of multicellular organisms  
Nutrition of mammals as an example of multicellular organisms  
Sensitivity to stimuli in multicellular organisms  
Mammalian immunity and monoclonal antibodies

### Energy

ATP  
Biochemistry of respiration  
Photosynthesis

### Mechanisms of evolution

Meiosis and genetics and the mechanisms of evolutionary change  
Reproduction

### Organisms in the environment

Evolutionary and Conservation Ecology

### Biotechnology

Gene Technology

Part of what makes Cambridge Pre-U Biology distinctive, is the context in which it should be taught. CIE expects candidates to put Biological topics in an evolutionary context. In other words, they should be able to follow the story of Life on Earth. This syllabus reflects the view shared by many biologists that 'Nothing in Biology makes sense except in the light of evolution'. (Theodosius Dobhansky)

Cambridge Pre-U Biology places considerable emphasis on understanding and use of scientific ideas and principles in a variety of situations, including those which are new to candidates. Programmes of study based on this syllabus should feature a variety of teacher-centred and pupil-centred learning experiences designed to enhance the development of skill and comprehension. This approach focuses teachers and learners on development of transferable life-long skills relevant to today's increasingly technological environment. It also prepares candidates for an assessment that, within less familiar contexts, tests expertise, understanding and insight. A Scheme of Work should be produced by teachers to reflect the sequence and repertoire of learning opportunities that they feel are most appropriate for their candidates.

### Support and Resources

CIE offers a programme of Cambridge Pre-U INSET training for teachers accompanied by support materials on a dedicated Cambridge Pre-U website.

Full syllabus details are at [www.cie.org.uk/cambridgepreu](http://www.cie.org.uk/cambridgepreu)

Specimen assessment materials are available from: [international@cie.org.uk](mailto:international@cie.org.uk)



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