1. **Title of the module**

BIOS6500 (BI650) Advances in Eukaryotic Diversity and Evolution

1. **School or partner institution which will be responsible for management of the module**

School of Biosciences

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 6

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn Term

1. **Prerequisite and co-requisite modules**

Pre-requisites: BIOS3230 (BI323); BIOS3240 (BI324)

1. **The programmes of study to which the module contributes**

BSc Biology and related programmes

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**
	1. Demonstrate knowledge of the major processes underlying eukaryotic diversity and evolution
	2. Demonstrate handling skills associated with the analysis of data relevant to taxonomy, diversity and evolution of microbial eukaryotes.
2. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**
	1. Retrieve information with subsequent interpretation
	2. Analyse and evaluate data
	3. Demonstrate improved written communication skills
3. **A synopsis of the curriculum**

This module will introduce the students to the diversity of eukaryotic organisms (mainly microbes in the six domains of the eukaryotic tree of life), theories on endosymbiotic events (chloroplasts & mitochondria), organellar adaptations and diversity, primary and secondary acquisition of other organelles, lateral gene transfer in eukaryotes, adaptations to extreme environments (from anoxia, to salinity and to parasitism), community evolution (microbiome) and the evolution of multi-cellularity.

**Lectures** will cover the following major topics: eukaryotic diversity, genomes and eukaryote phylogeny; the theories of eukaryogenesis; introduction to major eukaryotic clades (fungi etc); the evolution of parasitism and of multicellularity; extreme eukaryotic microbiology; microbial eukaryotes and the microbiome; and the evolution of microbial communities

**Group discussion** **Workshop:** on the theories of eukaryogenesis

**Field practical:** Field sampling: soil, aquatic and animal microbiome

**Laboratory practical**: Culturing, taxonomy and data analysis

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

**Core reading list:**

* W. Foissner and D. L. Hawksworth, (2009) *Protist Diversity and Geographical Distribution* (Springer)
* L A. Katz and D. Bhattacharya (2006) *Genomics and Evolution of Microbial Eukaryotes* (Oxford University press)

**Recommended list**:

* J. Archibald (2014) *One Plus One Equals One: Symbiosis and the evolution of complex life* (Oxford University press)
* N. Lane (2005). *Power, Sex, Suicide: Mitochondria and the Meaning of Life*. (Oxford University Press)
* N. Lane (2009). *Life Ascending: The Ten Great Inventions of Evolution*. (Profile Books)

The rest of the suggested reading will consist of review articles and primary research publications. There is going to be given emphasis during this course on how to effectively read and interpret the literature first hand.

1. **Learning and teaching methods**
* 26 Contact hours comprising lectures, workshops, field work and laboratory practicals
* 124 Hours of private study
* Total hours for the module 150

1. **Assessment methods**
	1. Main assessment methods
* Essay, 1500 words (15%)
* Laboratory practical report, 2500 words (35%)
* Exam, 2 hours (50%)

13.2. Reassessment methods

Like-for-like composite reassessment where one piece of like-for-like assessment will be set that will address all the coursework learning outcomes for any failed components.

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 9.1 | 9.2 | 9.3 |  |  |
| **Learning/ teaching method** |  |  |  |  |  |  |  |
| **Private Study** | **X** | **X** | **X** | **X** | **X** |  |  |
| *Lectures* | **X** |  | **X** |  |  |  |  |
| *Workshop (group discussion)* | **X** | **X** | **X** | **X** | **X** |  |  |
| *Field practical* | **X** | **X** | **X** |  |  |  |  |
| *Laboratory Practical* | **X** | **X** | **X** | **X** | **X** |  |  |
| **Assessment method** |  |  |  |  |  |  |  |
| *Essay (based on discussion workshop)* | **X** |  | **X** | **X** | **X** |  |  |
| *Laboratory Practical report* | **X** | **X** | **X** | **X** | **X** |  |  |
| *Examination* | **X** |  |  |  | **X** |  |  |

1. **Inclusive module design**

The School of Biosciences recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see *Annex B Appendix A*) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

Biosciences is an international discipline. This module presents subject-specific knowledge, research approaches and techniques, generated, developed and refined by scientists around the world. Mastery of the learning outcomes will equip students to apply the theories and techniques of the module in a wide range of international contexts. In compiling the reading list, consideration has been given to the range of texts that are available internationally and a selection has been identified to complement the delivery of the material. The School of Biosciences is an international community of students and staff. Group activities e.g. in practicals, tutorials, workshops and self-study will naturally draw on the international make-up of the student body; the module teaching team includes members with international experience of teaching and research collaboration.

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**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

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| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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