1. **Title of the module**

BIOS6100 (BI610) – The Cell Cycle

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

Division of Natural Sciences

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)**

Spring (Term 2)

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

None

1. **The course(s) of study to which the module contributes**

Compulsory for BSc Biology and related courses

Optional for BSc Biochemistry and related courses

1. **The intended subject specific learning outcomes.  
   On successfully completing the module students will be able to:**

8.1 Demonstrate detailed knowledge of the Cell Cycle and its control.

8.2 Explain changes to the cytoskeleton through the cell cycle and its control.

8.3 Demonstrate a detailed understanding of apoptosis and its control.

8.4 Demonstrate a detailed knowledge of cell cycle checkpoints.

8.5 Analyse and interpret microscopy data, and present in an appropriate manner.

1. **The intended generic learning outcomes.  
   On successfully completing the module students will be able to:**

9.1 Retrieve, analyse and evaluate information from textbooks, primary research papers and review articles.

9.2 Demonstrate effect communication skills.

1. **A synopsis of the curriculum**

The module introduces the student to cell cycle and teaches how its precise regulation is essential for all life. The course will introduce to the students the current understanding of cellular reproduction and how it emerged. The initial lectures will describe the important breakthroughs in cell cycle research in their historical and experimental context. The course will go on to give the students a detailed understanding of the key events that occur and how they are regulated by mechanisms conserved from yeast to man. Key topics that will be discussed include:

* Mitotic kinases (including Cdks, Polo, aurora).
* Microtubule reorganisation (including spindle formation and regulation).
* Actin reorganisation (including regulation of cell growth, endocytosis, and cell division)
* Checkpoints (including Spindle assembly checkpoint, DNA damage checkpoint).
* Meiosis.
* Apoptosis.
* Organelle reorganisation (e.g. nuclear and golgi reorganisation).
* Cancer and the cell cycle.
* Cell cycle related pathologies.

The final lectures will then introduce the students to how generating computer models of the cell cycle are playing a crucial role in defining novel avenues for research into therapies for cell cycle related diseases.

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

Alberts, B. et al. (2014). Molecular Biology of the Cell (Sixth Edition). New York: Garland Science

Morgan, D.O. (2006). *The Cell Cycle - Principles of Control*. Oxford: OUP

Murray, A. & Hunt, T. (1994). *The Cell Cycle – An Introduction*. Oxford: OUP

1. **Learning and teaching methods**

Total Contact Hours: 20

Total Private Study Hours: 130

Total Study Hours: 150

1. **Assessment methods**
   1. Main assessment methods

* Practical Report (2,000 words) – 30%
* Examination (2 hours) – 70%

Both the practical report and the examination are compulsory sub-elements and must be passed to complete the module

13.2 Reassessment methods

* Like for like

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* | *8.3* | *8.4* | *8.5* | *9.1* | *9.2* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Lecture | **x** | **x** | **x** | **x** |  |  |  |
| Practical | **x** | **x** | **x** |  | **x** |  |  |
| **Assessment method** |  |  |  |  |  |  |  |
| Practical Report | **x** | **x** |  | **x** | **x** | **x** | **x** |
| Examination | **x** | **x** | **x** | **x** |  |  | **x** |

1. **Inclusive module design**

The Division 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 Division of Natural Sciences 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.

**DIVISION USE ONLY**

**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 delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 17/12/20 | Major | September 2021 | 8, 13-14 | No |
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| Revised FSO Jan 2018 |