1. **Title of the module**

BI513 Human Physiology and Disease II

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

Biosciences

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

Level 5

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

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

Prerequisite: BI302 Molecular and Cellular Biology and BI307 Human Physiology and Disease are strongly recommended.

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

Biomedical Sciences and related programmes

Biochemistry and related programmes

Biology and related programmes

Bioengineering

1. **The intended subject specific learning outcomes.**

Human physiology and disease is taught over two years. The Stage 1 module (BI307) introduces the subject and covers the physiology of immune, digestive, respiratory, cardiovascular and excretory systems. This Stage 2 module covers endocrine, reproductive, nervous and muscular systems. On successfully completing the module students will be able to:

8.1 Describe the structural organization and function of specific physiological systems of the body and understand how the body systems act in an integrated manner to maintain homeostasis.

8.2 Describe how malfunction of physiological systems gives rise to disease, using specific examples.

8.3 Appreciate the relationship between physiology, anatomy and medicine

The above learning outcomes relate to the Programme outcomes as follows:

BSc Biomedical Science and related programmes: 8.1-8.3 (A1-A5, A7, B1, B2, B3, C4, D1, D4).

BSc Biochemistry and related programmes: 8.1-8.3 (A1-A3, A7, B1, B2, B3, C4, D1, D4).

BSc Biology and related programmes: 8.1-8.3 (A7, A10, B1, B3, C2, C6, D5, D11).

1. **The intended generic learning outcomes.**

On successfully completing the module students will have developed the following skills:

* 1. Retrieval, interpretation and application of information

9.2 Data analysis and evaluation

9.3 Written and oral communication skills

The above learning outcomes relate to the Programme outcomes as follows:

BSc Biomedical Science and related programmes: 9.1 (B1-B4, B8, C4, C6, D1, D4); 9.2 (B1, B3, B4, B5, D3); 9.3 (A16, B3, C6, D2).

BSc Biochemistry and related programmes: 9.1 (B1-B4, B8, C4, C6, D1, D4); 9.2 (B1, B3, B4, B5, D3); 9.3 (A11, B3, C6, D2).

BSc Biology and related programmes: 9.1 (B2-B4, B5, C6, C8, D4, D5, D7, D11); 9.2 (B2-B4, C1, C7, D9, D10); 9.3 (B2, C8, D6, D7).

1. **A synopsis of the curriculum**

**Reproductive System:** Male and female reproductive systems; Endocrine control of reproduction; Fertilisation; Early embryogenesis; Pregnancy and Parturition; Reproductive disorders.

**Muscle:** Muscle types: skeletal, smooth and cardiac; Structure of muscle; Molecular basis of contraction; Regulation of contraction including neural control; Energy requirements of muscle; Types of movement: reflex, voluntary, rhythmic; Muscle disorders.

**Nervous System** Cells of the nervous system: neurons and glia; Electrical properties of neurons: action potential generation and conduction; Synaptic structure and function: transmitters and receptors; Structural organization of the central nervous system (CNS) and function of individual regions; Organization and function of the peripheral nervous system (PNS): somatic motor, autonomic (sympathetic and parasympathetic) and sensory; Sensory systems: vision, hearing, taste, smell, pain. Disorders of the nervous system.

###### **Endocrine System**: Endocrine glands; Classes of hormones; Mechanisms of hormone action; Regulation of hormone release; Endocrine disorders.

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

Silverthorn, D.U. *Human Physiology – An Integrated Approach*, Pearson Education. Recent editions suitable; latest is 7th edition (2015)

1. **Learning and Teaching methods**

The course material will be delivered in lectures with directed reading in support of lecture material.

Workshops will introduce case studies and data analysis and provide support for the in class test and summer exam.

 **Contact hours**: **24h**

 Lectures 21h (addresses learning outcomes 8.1-8.3, 9.1)

 Workshops 3h (addresses outcomes 8.1-8.3, 9.1-9.3)

 **Self-study**: **126h** (addresses all learning outcomes)

1. **Assessment methods.**

Assessment is by in class test, 20%; case study/data analysis, 20%; end of year examination, 60%

The in class test (1h, MCQ, 20%) will assess knowledge of reproductive and muscle physiology (addresses learning outcomes 8.1-8.3, 9.1)

The case study/data analysis activity (1.5h, 20%) will assess ability to apply knowledge, evaluate and interpret data relating to physiology and disorders of the nervous system (addresses learning outcomes 8.2-8.3, 9.1-9.2)

The end of year examination (2h, essay based, 60%) will assess knowledge, understanding and integration of module content (addresses learning outcomes 8.1-8.3, 9.1, 9.3)

1. ***Map of Module Learning Outcomes (sections 8 & 9) to Learning and Teaching Methods (section12) and methods of Assessment (section 13)***

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** |  | *8.1* | *8.2* | *8.3* |  |  |  | *9.1* | *9.2* | *9.3* |  |  |  |
| **Learning/ teaching method** | **Hours allocated** |  |  |  |  |  |  |  |  |  |  |  |  |
| Lectures | 21  | **X** | **X** | **X** |  |  |  | **X** |  |  |  |  |  |
| Workshop | 3 | **X** | **X** | **X** |  |  |  | **X** | **X** | **X** |  |  |  |
| Self-study |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Revision and reading* | 124 | **X** | **X** | **X** |  |  |  | **X** | **X** | **X** |  |  |  |
| *Workshop problem* | 2 |  |  |  |  |  |  | **X** | **X** |  |  |  |  |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| In-class test |  | **X** | **X** | **X** |  |  |  | **X** |  |  |  |  |  |
| Case study/Data analysis |  |  | **X** | **X** |  |  |  | **X** | **X** |  |  |  |  |
| Examination |  | **X** | **X** | **X** |  |  |  | **X** |  | **X** |  |  |  |
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1. **The School recognises and has embedded the expectations of current disability equality legislation, and supports students with a declared disability or special educational need in its teaching. Within this module we will make reasonable adjustments wherever necessary, including additional or substitute materials, teaching modes or assessment methods for students who have declared and discussed their learning support needs. Arrangements for students with declared disabilities will be made on an individual basis, in consultation with the University’s disability/dyslexia student support service, and specialist support will be provided where needed.**
2. **Campus(es) or Centre(s) where module will be delivered:**

Canterbury

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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) |
| 25/10/16 | Minor | September 2015 | 3, 4, 7, 8, 11-13 | No |
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