UNIT DETAILS

Unit Code: 6H4Z1019
Unit Name: SYSTEMS PHYSIOLOGY (Student Mobility)
Department: School of Healthcare Science
Faculty: Faculty of Science & Engineering
Level: 4 Credits: 15 ECTS: 7.5

UNIT DESCRIPTION

Brief Summary: The Systems Physiology unit introduces students to the principles of human physiology at the organ system level with appropriate links to anatomy, cell biology, biochemistry and metabolism, pathology, pharmacology and therapeutics. Students will study a selection of topics from: Homeostasis and feedback control; Neural and Endocrine systems; Principles of pharmacology (ADME, drug targets and mechanisms of action) and therapeutics; Muscle function and movement; Cardiovascular physiology; Respiratory and Acid-base physiology; Renal and body fluid physiology; Gastrointestinal physiology; Liver and Pancreatic physiology; Stress response mechanisms; Immune mechanisms; and Reproductive physiology.

Indicative Content: Students will study a selection of topics from: Homeostasis and feedback control; Neural and Endocrine systems; Principles of pharmacology (ADME, drug targets and mechanisms of action) and therapeutics; Muscle function and movement; Cardiovascular physiology; Respiratory and Acid-base physiology; Renal and body fluid physiology; Gastrointestinal physiology; Liver and Pancreatic physiology; Stress response mechanisms; Immune mechanisms; and Reproductive physiology.

LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to:

Learning Outcome 1: demonstrate knowledge of the anatomy and physiological functions of the major body systems and relate these to their cell types and structure;

Learning Outcome 2:

Learning Outcome 3:

Learning Outcome 4:

Learning Outcome 5:

ASSESSMENT

Element Type Weighting Min Pass Mark Employability & Sustainability Outcomes
Coursework 100 Find, evaluate, synthesise and use information

Method of Assessment

1 Essay

Description

Students will be supported in the production of the essay. Formative assessments will assess ongoing learning.

LEARNING ACTIVITIES

Breakdown of 150 hours of student learning activity

Summative Assessment: 25
Directed Study: 25
Student-centred: 50

Mandatory Requirements:

LEARNING RESOURCES

Special ICTS Requirements:

Additional Requirements:
UNIT SPECIFICATION FOR EXCHANGE AND STUDY ABROAD

UNIT DETAILS

Unit Code: 6H5Z1025  
Unit Name: INFECTION & IMMUNITY  
Department: School of Healthcare Science  
Faculty: Faculty of Science & Engineering  
Level: 5  
Credits: 15  
ECTS: 7.5

UNIT DESCRIPTION

Brief Summary: Investigates the role of microbiology in the diagnosis and treatment of disease.

Indicative Content: Students will study a selection of topics from: concepts of commensal, pathogenic and opportunistic microorganisms; microbial pathogens; pathogenic determinants; collection and validity of patients’ samples for diagnosis; disinfection and sterilisation; diagnostic procedures including microscopy, traditional culture, biochemical profiling, serology, molecular applications and laboratory automation; antimicrobial and antiviral therapy; drug resistance; infection control; innate and acquired immunity; immunisation; and epidemiology of infectious diseases.

LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to:

Learning Outcome 1: describe the contribution of microorganisms in disease burden and how such infections are treated

LEARNING ACTIVITIES

Breakdown of 150 hours of student learning activity

Summative Assessment: 25  
Directed Study: 25  
Student-centred: 50

ASSESSMENT

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Description

Students will be supported in the production of the essay

LEARNING RESOURCES

Special ICTS Requirements:

Additional Requirements:
# UNIT SPECIFICATION FOR EXCHANGE AND STUDY ABROAD

## UNIT DETAILS

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<td>APPLIED AND ENVIRONMENTAL PHYSIOLOGY</td>
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## UNIT DESCRIPTION

**Brief Summary:** This unit allows students to evaluate the effects of a variety of stresses on normal physiological function and to consider how, in light of such challenges, normal physiological function is maintained. Students will study a selection of topics from: challenges and adaptation to increased or decreased pressure; the stress response; thermoregulatory responses to extreme temperature changes; addiction, and environmental impacts on neuroplasticity.

**Indicative Content:**
- Challenges and adaptation to increased or decreased pressure
- The stress response
- Thermoregulatory responses to extreme temperature changes
- Addiction
- Environmental impacts on neuroplasticity

## LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to:

- **Learning Outcome 1:** describe and evaluate the physiological responses to a range of environmental and self-imposed stressors

## ASSESSMENT

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**Method of Assessment**

1. **Essay**

**Description**

Students will be supported to produce the essay. Formative assessments will assess ongoing learning.

## LEARNING ACTIVITIES

Breakdown of 150 hours of student learning activity

- **Summative Assessment:** 25
- **Directed Study:** 25
- **Student-centred:** 50

## LEARNING RESOURCES

- **Special ICTS Requirements:** PowerLabs for practical sessions
- **Additional Requirements:**

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# UNIT SPECIFICATION FOR EXCHANGE AND STUDY ABROAD

## UNIT DETAILS

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<td>HUMAN NEUROSCIENCE</td>
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## UNIT DESCRIPTION

### Brief Summary:
Human Neuroscience covers the anatomy and functions of neurons, neurotransmitters and their receptors; neuropharmacology; psychoactive drugs; sensory and motor systems; and neurological disorders and disabilities. Students will study a selection of topics from: 1) Diversity of neuron types, neurotransmitter pathways, neurotransmitter receptors, signalling mechanisms and synapses. 2) Principles of neuropharmacology with particular focus on the autonomic nervous system and the actions of psychoactive drugs on the brain and human behaviour. 3) Brain anatomy and higher brain functions and how these can be visualised and studied using a range of imaging and neurophysiological techniques. 4) How sensory and motor systems are integrated and how brain functions are affected by a range of neurological disorders and disabilities.

### Indicative Content:

- Diversity of neuron types, neurotransmitter pathways, neurotransmitter receptors, signalling mechanisms and synapses.
- Principles of neuropharmacology with particular focus on the autonomic nervous system and the actions of psychoactive drugs on the brain and human behaviour.
- Brain anatomy and higher brain functions and how these can be visualised and studied using a range of imaging and neurophysiological techniques.
- How sensory and motor systems are integrated and how brain functions are affected by a range of neurological disorders and disabilities.

## LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to:

1. Describe the functioning of the human nervous system in relation to its anatomy, physiology and pharmacology.
2. (Learning Outcome 2:)
3. (Learning Outcome 3:)
4. (Learning Outcome 4:)
5. (Learning Outcome 5:)

## ASSESSMENT

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**Method of Assessment**

Students will be supported in the production of the essay. Formative assessments will support students as they progress through their studies.

## LEARNING ACTIVITIES

Breakdown of 150 hours of student learning activity

- Summative Assessment: 25
- Directed Study: 25
- Student-centred: 50

## LEARNING RESOURCES

- Special ICTS Requirements: Powerlabs for practical sessions
- Additional Requirements:
UNIT DETAILS

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<td>Unit Name:</td>
<td>Exercise and Nutritional Physiology</td>
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UNIT DESCRIPTION

Brief Summary: This unit aims to expand on knowledge of human and exercise physiology by examining, in detail, the response of physiological systems to exercise as well as introducing issues related to human nutrition and health. Students will study a selection of topics from exercise and nutritional physiology e.g. Exercise physiology will focus on cardiovascular, respiratory, musculoskeletal and endocrine responses to exercise in humans. Mechanisms by which these responses occur will be discussed in detail and their relevance to disease prevention will be a primary focus. Nutritional Physiology will focus on the role of different macronutrients in the human body as well as detailed discussion on absorption, transport and storage of macronutrients. Particular emphasis will be placed on the relationship between physical activity and diet on prevention of disease and maintenance of body mass.

LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to:

- Learning Outcome 1: describe and discuss the impact of exercise and nutrition on physiology
- Learning Outcome 2:
- Learning Outcome 3:
- Learning Outcome 4:
- Learning Outcome 5:

ASSESSMENT

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LEARNING ACTIVITIES

Breakdown of 150 hours of student learning activity

- Summative Assessment: 25
- Directed Study: 25
- Student-centred: 50

LEARNING RESOURCES

- Special ICTS Requirements:
- Additional Requirements:
UNIT DETAILS

Unit Code: 6H6Z1019
Unit Name: GENETICS, DNA, DISEASE
Department: School of Healthcare Science
Faculty: Faculty of Science & Engineering
Level: 6
Credits: 15
ECTS: 7.5

UNIT DESCRIPTION

Brief Summary: Students will explore the current thinking in genetic theory and practice and the changes and mutations that can occur in DNA, leading to disease.

Indicative Content: Students will study a selection of topics from: nucleic acid extraction methods, gene regulation and control, mutation screening, population and behavioural genetics, eugenics, epigenetics and genome scanning along with aspects of genetics and cancer, cardiovascular disease, obesity, blood disorders, neurological disorders and ageing. An overview will be provided of how changes in DNA arise, how such mutations can affect gene function and how they are linked to pathogenesis. This will be linked to the diagnosis of genetic conditions by, for example, PGD and also the monitoring of treatment along with future prospects of gene therapy.

LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to:

Learning Outcome 1: evaluate the impact of modern genetic analysis and appreciate that the molecular pathology of the genome is associated with many human disease and explain how mutations lead to the diversity of genetic diseases

Learning Outcome 2:

Learning Outcome 3:

Learning Outcome 4:

Learning Outcome 5:

ASSESSMENT

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LEARNING ACTIVITIES

Breakdown of 150 hours of student learning activity

Summative Assessment: 25
Directed Study: 25
Student-centred: 50

Mandatory Requirements:

LEARNING RESOURCES

Special ICTS Requirements:
Additional Requirements:
UNIT SPECIFICATION FOR EXCHANGE AND STUDY ABROAD

UNIT DETAILS

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UNIT DESCRIPTION

Brief Summary: This unit aims to investigate current issues in obesity, cardiovascular disease and diabetes with particular emphasis on the role of diet and exercise in prevention and treatment.

Indicative Content: Students will study a selection of topics from: obesity, cardiovascular disease and diabetes.

LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to:

Learning Outcome 1: describe and discuss current issues in health physiology

Learning Outcome 2:

Learning Outcome 3:

Learning Outcome 4:

Learning Outcome 5:

ASSESSMENT

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Method of Assessment

1. Essay

Description

Students will be supported to produce the essay. Formative assessments will assess ongoing learning.

LEARNING ACTIVITIES

Breakdown of 150 hours of student learning activity

| Summative Assessment: | 25 |
| Direct Study:         | 25 |
| Student-centred:      | 50 |

Mandatory Requirements:

LEARNING RESOURCES

Special ICTS Requirements:

Additional Requirements:
**UNIT DETAILS**

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<tbody>
<tr>
<td>Unit Name:</td>
<td>MICROBIOLOGY AND HEALTH</td>
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**UNIT DESCRIPTION**

**Brief Summary:**
This unit explores the interactions occurring between man and microorganisms at body, environment and population level. Students will study a selection of topics from: commensal flora and associated aspects of microbiology: mixed infection, wound infection, the oral flora, gut health, the ageing population, medical biofilms; novel and existing approaches to treatment and prevention of disease - gut barrier function, prebiotics and probiotics, IBD, IBS, healthcare-associated infections, CDAD, phage therapy; safety: risk, professional conduct, HACCP; hygiene, cross-infection and infection control, antimicrobial surfaces food-associated microbiology; nutrition, food-borne illness, food spoilage, preservation and processing, drinking water safety populations: global health, climate change, feeding the world, emerging diseases, neglected diseases, pandemics; diseases of global concern - malaria, tuberculosis, HIV/AIDS, influenza, cholera

**Indicative Content:**
- Students will study a selection of topics from: commensal flora and associated aspects of microbiology: mixed infection, wound infection, the oral flora, gut health, the ageing population, medical biofilms.
- Novel and existing approaches to treatment and prevention of disease - gut barrier function, prebiotics and probiotics, IBD, IBS, healthcare-associated infections, CDAD, phage therapy.
- Safety: risk, professional conduct, HACCP.
- Hygiene, cross-infection and infection control, antimicrobial surfaces.
- Food-associated microbiology: nutrition, food-borne illness, food spoilage, preservation and processing, drinking water safety.
- Populations: global health, climate change, feeding the world, emerging diseases, neglected diseases, pandemics.
- Diseases of global concern - malaria, tuberculosis, HIV/AIDS, influenza, cholera.

**LEARNING OUTCOMES**

On successful completion of this Unit, the student will be able to:

- **Learning Outcome 1:** evaluate the relationship between microorganisms and health
- **Learning Outcome 2:**
- **Learning Outcome 3:**
- **Learning Outcome 4:**
- **Learning Outcome 5:**

**ASSESSMENT**

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**Method of Assessment**

**Description**

Students will be supported in the production of the essay. Formative assessments will assess ongoing learning.

**LEARNING ACTIVITIES**

Breakdown of 150 hours of student learning activity

- **Summative Assessment:** 25
- **Directed Study:** 25
- **Student-centred:** 50

**Mandatory Requirements:**

**LEARNING RESOURCES**

- **Special ICTS Requirements:**

- **Additional Requirements:**