MD2B4-30 Interactions: Environment and Genes

22/23

Department
Warwick Medical School
Level
Undergraduate Level 2
Module leader
Olalekan Uthman
Credit value
30
Module duration
7 weeks
Assessment
40% coursework, 60% exam
Study location
University of Warwick main campus, Coventry

Description

Introductory description

To facilitate an in-depth understanding of interactions as they pertain to the environment (both internal and external) and the body in health and disease. Students will experience integrated perspectives about interactions from the course themes and previous module content that is consolidated and advanced through case based learning.

Module web page

Module aims

To facilitate an in-depth understanding of interactions as they pertain to the environment (both internal and external) and the body in health and disease.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

This module will follow the integrated pathogens module and the assessment for that block. The

topics covered in this module will be complex because they are interrelated and students will need to exercise good pattern recognition and cognitive flexibility. Again, the module will build from taught content with lecture theatre based presentations and interactive presentations as well as case-based learning sessions, all supported by TEL and online content.

In the biomedical sciences, students will cover interactions between epigenome, genome, environment and health. Areas such as pharmacology including pharmacokinetics, pharmacodynamics and clinical trials will provide discussion of specific case vignettes. Students will also revisit circadian rhythm and sleep and their complex interaction with many previous module content areas.

In the health sciences, the extended topics of planetary health will be introduced. The concepts of decision making in health will be re-visited and extended to include interactions between politics, policies and the law. Medical ethics will be linked to clinical trials to provide an interesting setting for discussion.

The cases in this module will explore contemporary examples of diseases which can be caused by the external environment, and corresponding the importance of understanding the internal environment for the treatment of disease and illness.

Learning outcomes

By the end of the module, students should be able to:

- 1. To develop a broad understanding of the key concepts, principles and theories, which will support a multidisciplinary approach to understanding environmental associations with health
- 2. Describe the effectiveness and dynamics of therapeutic interventions and to explain the steps required for ethical approaches and clinical trials
- 3. To analyse the relationship and interaction between environmental factors, genetic material, health and disease, and explore the broad implications of environmental change for the continuation of a sustainable society
- 4. To interrelate socio-economic, occupational and industrial factors, and a healthy environment
- 5. To identify local and global causes and consequences of conflict induced displacement
- 6. Present your research findings related to a health problem covered in the interaction module
- 7. To develop and use strategic planning and reasoning skills to engage with others to individually or collectively put forward structured ideas that can have a positive influence on local and global challenges in health

Indicative reading list

1. Timbrell J. (2002) Introduction to toxicology. 3rd edition. Informa Healthcare / CRC Press.
2. Rang et al. (2011) Pharmacology. 7th edition. Churchill Livingstone.
3. Hope et al., (2008) Medical ethics and the law: the core curriculum. 2nd edition. Edinburgh: Churchill Livingstone.
4. Watts et al. (2018) The Lancet Countdown on health and climate change: from 25 years of inaction to a global transformation for public health. Lancet. 391 (10120): 581-630.

5. Paavola J. (2017) Health impacts of climate change and health and social inequalities in the UK. Environ Health. 16 (Suppl 1): 113.
6. Cappuccio et al. (2018) Sleep, health, and society: From Aetiology to Public Health. 2nd edition. OUP Oxford.
7. Alberts et al. (2014) Molecular biology of the cell. 6th edition. W.W. Norton and Company.

Subject specific skills

Knowledge and understanding of the key concepts, principles and theories, which will support a multidisciplinary approach to understanding environmental associations with health
Knowledge of the steps required for approval of interventions and ability to recognise the factors that can impact the effectiveness of an intervention as well as uptake of an intervention by the public
Ability to identify environmental factors that play a significant role in determining individual and population level health as well as the ability to investigate the interactions between environmental factors and health in its broadest term

Transferable skills

Presentation skills, critical thinking, Self-directed learning, evidence-based approach to problem solving, time management, integration of information, group learning

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Study

Study time

Type	Required
Lectures	38 sessions of 1 hour (22%)
Seminars	25 sessions of 1 hour (15%)
Online learning (scheduled sessions)	20 sessions of 1 hour (12%)
Private study	87 hours (51%)
Total	170 hours

Private study description

Students would be expected to engage in 217 hours of self-directed learning outside other learning and teaching activities outlined above. 60% of this time (130h) is allocated to preparation and undertaking assessments.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group D

	Weighting	Study time
Presentation Presentation on a health topic covered in the module	40%	52 hours
Locally Timetabled Examination Synoptic paper with questions from all 30 CATS modules completed in year 2	30%	39 hours
Locally Timetabled Examination - Synoptic Paper The exam will cover topics covered within the module.	30%	39 hours

Feedback on assessment

Feedback will be provided to students from their multiple choice question examinations by highlighting the topic areas the student answered incorrectly. The presentation and synoptic exam will be marked using standardised rubrics, which will provide feedback to the students (including individualised feedback) in line with WMS assessment criteria (including submission to Plagiarism software). Further verbal feedback will be available to students on request. Every student who fails an element of assessment will be offered an appointment for face to face feedback.

Past exam papers for MD2B4

Availability

Courses

This module is Core for:

- UMDA-B990 Undergraduate Health and Medical Sciences
  - Year 2 of B990 Health and Medical Sciences
  - Year 2 of B990 Health and Medical Sciences
  - Year 2 of B990 Health and Medical Sciences