



Module Specification

Antimicrobial Agents

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Contents

Module Specification	1
Part 1: Information	2
Part 2: Description	2
Part 3: Teaching and learning methods	3
Part 4: Assessment.....	4
Part 5: Contributes towards	6

Part 1: Information

Module title: Antimicrobial Agents

Module code: USSKBY-15-3

Level: Level 6

For implementation from: 2023-24

UWE credit rating: 15

ECTS credit rating: 7.5

Faculty: Faculty of Health & Applied Sciences

Department: HAS Dept of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Microbiology 2023-24, Pharmacology 2023-24

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Pre-requisites: Students must have taken Microbiology (USSKB6-15-2) or Pharmacology (USSJXP-15-2)

Features: Not applicable

Educational aims: This module aims to broaden and deepen your understanding of antimicrobial agents, with the focus mainly on antibacterial and antiviral agents. It

covers the main targets of, and resistance to, these agents and explores wider issues which are driving resistance.

Outline syllabus: Syllabus outline:

Antibacterial agents - bacterial cell envelope as a target

Gram positive and Gram negative cell envelope structure; cell wall (peptidoglycan) synthesis and structure, antibacterial agents that target the cell wall and antibacterial agents that affect membrane integrity (peptides): proposed modes of action and overview of uses

Antibacterial agents - bacterial protein synthesis, RNA and DNA as targets. Review of protein synthesis in prokaryotic cells; survey of agents which target bacterial protein synthesis, proposed modes of action and overview of uses. Essential features of RNA and DNA synthesis in prokaryotic cells, highlighting targets for antibacterial agents; agents that affect DNA synthesis and integrity; agents targeting RNA synthesis; agents indirectly affecting nucleic acid synthesis via inhibition of folate synthesis

Antimicrobial agents: range, scope, use and alternatives

Antifungals, antivirals, biocides; non-clinical use of antimicrobial agents, alternative strategies to conventional antimicrobial therapy

Resistance to antimicrobials Genetic basis of resistance: mutation, plasmids, transposons, integrons Mechanisms of resistance: inactivation, target site alteration, drug uptake and efflux, alternative pathways/molecules, microbial physiological aspects. Testing for resistance: susceptibility testing, MICs, MBCs. Drivers of resistance: issues associated with antimicrobial use

Part 3: Teaching and learning methods

Teaching and learning methods: See Educational Aims and Assessment.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Demonstrate an in-depth knowledge of the modes of action and uses of a range of antimicrobial agents.

MO2 Demonstrate an in-depth knowledge of the mechanisms of resistance to antimicrobial agents.

MO3 Demonstrate an in-depth knowledge of the genetic basis of resistance to antimicrobial agents.

MO4 Evaluate the wider issues associated with resistance to antimicrobial resistance.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/usskby-15-3.html) via the following link <https://uwe.rl.talis.com/modules/usskby-15-3.html>

Part 4: Assessment

Assessment strategy: Assessment Task 1 is an online exam (with a 24hr window for submission) to be held during the January Assessment Period. This assessment will provide students with an opportunity to demonstrate their in-depth knowledge on a range of topics through a selection of essay questions. This assessment will test the full range of learning outcomes and will provide a valuable learning experience through recalling and demonstrating further knowledge, which will be of benefit when progressing to semester 2 final year modules.

The coursework (Assessment Task 2) is a researched essay, which will require

students to complete a 2,000 word written discussion of a topical subject in the field of antimicrobials. This exercise provides a valuable learning experience through applying knowledge whilst supporting and expanding upon this through the published literature. It is designed to encourage discussion and critical analysis of current knowledge on antimicrobial agents and their use. It builds upon literature searching and evaluation skills acquired at levels 1 and 2 and supports the development of these. The students are required to run the final version of their essay through the University's chosen plagiarism-checking system prior to online submission.

Students are provided with formative feed-forward for their exam through a revision and exam preparation session prior to the exam and through the support materials supplied through Blackboard. All work is marked in line with the Faculty of Health and Applied Sciences Generic Assessment Criteria for Level 3 and conforms to university policies for the setting, collection, marking and return of student work. Assessments are described in the Module handbook that is supplied at the start of module.

Assessment tasks:**Examination (Online) (First Sit)**

Description: Online Examination (24 Hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Written Assignment (First Sit)

Description: Essay (1500 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO4

Examination (Online) (Resit)

Description: Online Examination (24 hours)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

Written Assignment (Resit)

Description: Essay (1500 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Biomedical Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Biomedical Science [Sep][FT][Frenchay][4yrs] MSci 2021-22

Applied Biomedical Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2021-22

Biomedical Science [Sep][SW][Frenchay][5yrs] MSci 2020-21

Biomedical Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2020-21

Biomedical Science [Sep][SW][Frenchay][4yrs] BSc (Hons) 2020-21

Biomedical Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2020-21

Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2019-20

Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2019-20

Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2019-20

Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2019-20