**Module Descriptor**

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| **Title** | Factors Affecting Drug Action | | |
| **Session** | 2025/26 | **Status** | Published |
| **Code** | BIOL09014 | **SCQF Level** | 9 |
| **Credit Points** | 20 | **ECTS (European Credit Transfer Scheme)** | 10 |
| **School** | **Health and Life Sciences** | | |
| **Module Co-ordinator** | Gary Boyd | | |

**Summary of Module**

The aim of this module is to provide an understanding the factors that affect drug action in vivo including those affecting cardiovascular and respiratory disease states (such as asthma and hypertension).

The module will examine the phases and targets of drug action (in particular receptor dynamics and transduction mechanisms) as well as examining the effects of drugs on the physiological systems. This will be followed by an evaluation of the effects some drugs can have on specific pathophysiological conditions and disease states (with a focus on the cardiovascular and respiratory systems). Elements of basic quantitative pharmacology; including construction and analysis of 'dose-response' curves will be utilised for evaluation purposes. A combination of lectures and tutorials will be used to deliver the major contents of this module (in particular the targets of drug action), thus preparing students for further study of this area of biotechnology.

| **Module Delivery Method** | **On-Campus[1]** ☒ | **Hybrid[2]** ☐ | **Online[3]** ☐ | **Work -Based Learning[4]** ☐ |
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| **Campuses for Module Delivery** | ☐ Ayr<br>☐ Dumfries | ☒ Lanarkshire<br>☐ London<br>☐ Paisley | ☐ Online / Distance Learning<br>☐ Other (specify) | |

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

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| **Terms for Module Delivery** | Term 1 | ☐ | Term 2 | ☒ | Term 3 | ☐ |
| **Long-thin Delivery over more than one Term** | Term 1 – Term 2 | ☐ | Term 2 – Term 3 | ☐ | Term 3 – Term 1 | ☐ |

| **Learning Outcomes** | |
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| **L1** | Critically evaluate the pharmaceutical, pharmacokinetic and pharmacodynamic phases of drug action. |
| **L2** | Demonstrate knowledge and understanding of the underlying mechanisms and pathophysiology of cardiovascular and respiratory disease. |
| **L3** | Demonstrate knowledge and understanding of the mechanism of action of drugs targeting the physiological systems of the body. |
| **L4** | Demonstrate knowledge and understanding of the factors that affect drug action within clinical usage. |
| **L5** | Quantitatively analyse generated dose-response curves. |

| **Employability Skills and Personal Development Planning (PDP) Skills** | |
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| **SCQF Headings** | **During completion of this module, there will be an opportunity to achieve core skills in:** |
| **Knowledge and Understanding (K and U)** | **SCQF 9**<br>Demonstration of a broad and integrated knowledge of the cellular targets of drug action.<br>Demonstrate a critical understanding of the factors affecting drug action in vivo.<br>Demonstrate detailed knowledge of specialist areas of pharmacology (such as cardiovascular disease treatment) informed by forefront developments. |
| **Practice: Applied Knowledge and Understanding** | **SCQF 9**<br>Obtaining and evaluating experimentally derived data from computer simulations of pharmacological experiments; explaining the pharmacological basis of these measurements.<br>Using and referencing literature appropriately; conducting detailed independent research to support the pharmacological findings of experimental work. |
| **Generic Cognitive skills** | **SCQF 9**<br>Critical analysis and evaluation of detailed information from arrange of sources. |
| **Communication, ICT and Numeracy Skills** | **SCQF 9**<br>Communicating effectively and appropriately in speech or writing, the results of pharmacological studies and associated analytical work.<br>Making effective use of information retrieval systems and use information technology applications to analyse and evaluate associated information. |
| **Autonomy, Accountability** | **SCQF 9** |

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| **and Working with Others** | Exercise autonomy and initiative in identifying aims of projects, experiments and reports.<br>Respecting the views of team members and taking responsibility for the work of others.<br>Awareness of ethical and professional issues. |

| **Prerequisites** | **Module Code** | **Module Title** |
|---|---|---|
| | **Other** | |
| **Co-requisites** | **Module Code** | **Module Title** |

| **Learning and Teaching** | |
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| In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.<br>The overall teaching approach will focus on developing the ability of the students to describe the mechanism of action of drugs targeting the physiological systems of the body.<br>The associated laboratory/ tutorial activity will enable development of the level of understanding of general pharmacological principles.<br>This approach will require supporting lectures to be delivered on pharmacodynamics, pharmacokinetic and pharmaceutical considerations as well as the specific therapeutic applications in system disorders.<br>Complementing this formal presentation of materials to the students, there will be elements of independent research where student centred learning will be developed further.<br>There will in addition be a final examination at the end of the trimester. | |
| **Learning Activities**<br>During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below: | **Student Learning Hours**<br>(Note: Learning hours include both contact hours and hours spent on other learning activities) |
| Lecture / Core Content Delivery | 24 |
| Laboratory / Practical Demonstration / Workshop | 6 |
| Tutorial / Synchronous Support Activity | 6 |
| Independent Study | 164 |
| n/a | |
| n/a | |
| **TOTAL** | 200 |

| **Indicative Resources** |
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| **The following materials form essential underpinning for the module content and ultimately for the learning outcomes:**<br>Rang and Dale's (2018) Pharmacology (9th Edn) Elsevier IBSN 9780702074479<br>Saeb-Parsy, K. et al, (1999) Instant Pharmacology (Wiley)ISBN 0 471 97639 3 |

British Journal of Pharmacology (abstracts available online)

Trends in Pharmacology (library resource)

Computer packages

PCCAL and PharmaCAL-ology computer packages will be available in the laboratory.

Websites as supporting resources:

The student will in addition be referred to contemporary web-based material

British Pharmacological Society site: http://www.bps.ac.uk

British National Formulary:

http://bnf.nice.org

**(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)**

**Attendance and Engagement Requirements**

**In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time.**

**For the purposes of this module, academic engagement equates to the following:**

Students are expected to attend all scheduled classes, to contribute to class disucssions and other activities and to submit the required assessments.

**Equality and Diversity**

**The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code.**

In line with current legislation (Equality Act, 2010) and the UWS Equality, Diversity, and Human Rights Code, our modules are accessible and inclusive, with reasonable adjustment for different needs where appropriate. Module materials comply with University guidance on inclusive learning and teaching, and specialist assistive equipment, support provision and adjustment to assessment practice will be made in accordance with UWS policy and regulations. Where modules require practical and/or laboratory based learning or assessment required to meet accrediting body requirements the University will make reasonable adjustment such as adjustable height benches or assistance of a 'buddy' or helper.

**(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)**

**Supplemental Information**

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| **Divisional Programme Board** | **Biological Sciences Health** |
| **Overall Assessment Results** | ☐ **Pass / Fail** ☒ **Graded** |
| **Module Eligible for Compensation** | ☒ **Yes** ☐ **No**<br>**If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.** |

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| **School Assessment Board** | Biology |
| **Moderator** | Jamie Whitelaw |
| **External Examiner** | S Haliti |
| **Accreditation Details** | RSB |
| **Module Appears in CPD catalogue** | ☐ **Yes** ☒ **No** |
| **Changes / Version Number** | 2.1 |

| **Assessment (also refer to Assessment Outcomes Grids below)** |
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| **Assessment 1** |
| Class test. 60% of the overall module mark |
| **Assessment 2** |
| Coursework comprising a lab report and an Infographic. 40% of total module marks |
| **Assessment 3** |
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| (N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed.<br>(ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.) |

| **Component 1** | | | | | | | |
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| **Assessment Type** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **Weighting of Assessment Element (%)** | **Timetabled Contact Hours** |
| Class test (written) | ☒ | ☒ | ☒ | ☐ | ☐ | 60 | 2 |

| **Component 2** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Assessment Type** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **Weighting of Assessment Element (%)** | **Timetabled Contact Hours** |
| Report of practical/ field/ clinical work | ☐ | ☐ | ☐ | ☒ | ☒ | 40 | 0 |

| **Component 3** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Assessment Type** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **Weighting of Assessment Element (%)** | **Timetabled Contact Hours** |
| | ☐ | ☐ | ☐ | ☐ | ☐ | | |
| **Combined total for all components** | | | | | | 100% | 2 hours |

**Change Control**

| **What** | **When** | **Who** |
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